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THE SCOTTISH
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A CASE OF ACUTE PYELITIS IN INFANCY[1]

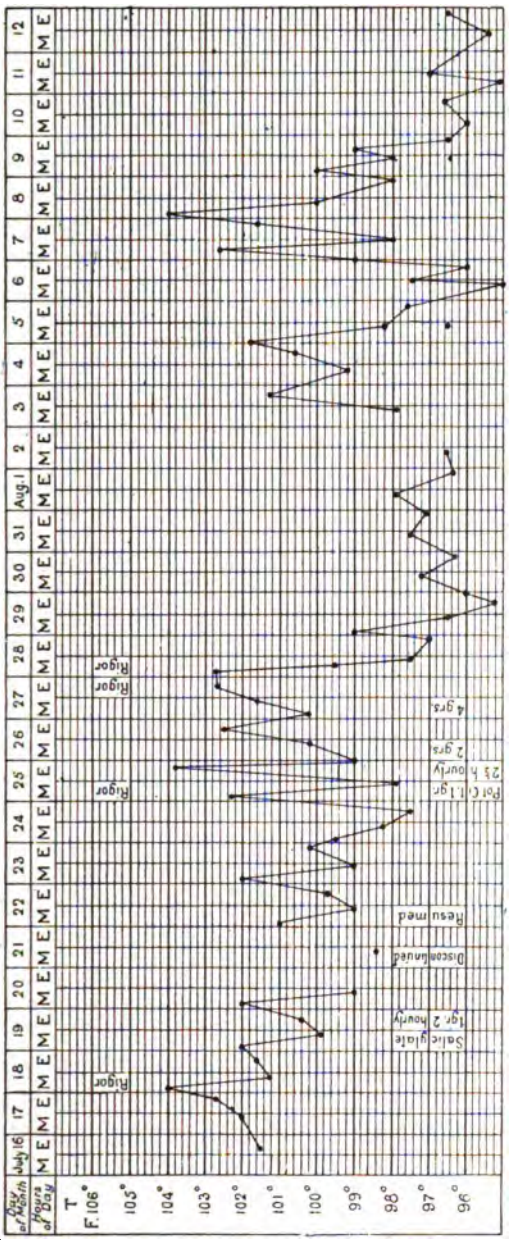
By JAMES RITCHIE, M.D., M.R.C.S.Eng.,
President of the Edinburgh Obstetrical Society

ACUTE PYELITIS in the adult is discussed at considerable length in text-books, but very little is found in pediatric literature regarding the disease in infancy. As the symptoms may be alarming and the affection stubborn unless suitable treatment be adopted, the case about to be described seems to be of sufficient interest to warrant the recording of it.

On 14th July 1901 the writer was called to see G. H., a female baby, 7½ months old. She had been fed on sterilised humanised milk, was well nourished, and had always enjoyed good health, except that her bowels had been costive and the motions often pale. Early on the morning of the 14th she had a rigor, consequently medical aid was sought. When the child was seen the temperature was only slightly above normal; nothing was found in the various systems, except that the bowels were costive, the motions pale; at the anus was a small crack; it was stated that the child sometimes cried when the bowels moved, and at times a streak of blood had been observed on the motions. The percussion note over the chest was clear, but the respiratory murmur was feeble and the breathing shallow. Micturition was normal, the urine clear, acid; no albumen was found on boiling some urine in a spoon at the patient's home. In the absence of evidence of disease elsewhere, the ears were examined, with negative result. As the child cried on being moved, was reddish fair, and both parents were of markedly rheumatic constitution, the provisional diagnosis was, a chill in a child of rheumatic constitution. The treat-

[1] Read before the Obstetrical Society of Edinburgh, 14th May 1902.

ment was hygienic, with small doses of spiritus etheris nitrosi, tincture of belladonna, and glycerine. On the 18th there was another rigor; careful examination did not reveal any change in the physical condition; sodium salicylate, 1 grain every two hours, was substituted for the former medicine. On the morning of the 20th the temperature was 99°, and on Sunday the 21st it was normal. Believing that the illness was probably at an end, the medicine was stopped. Next morning, as the thermometer registered 101°, the salicylate was resumed. The temperature continued to vary greatly (see chart); when it was not much raised, the child was happy and comfortable, except that movement seemed to trouble her, she fed as usual; but when the temperature rose she was much distressed and the breathing rapid, out of proportion to the amount of fever. On the 25th, having failed to discover the cause of illness, the writer asked Dr John Thomson to see the child. After having examined her, with the exception of the urine, he said that, by a process of exclusion, he had formed the opinion that probably there was pyelitis. A specimen of urine, taken with suitable precautions, was found to be very acid, not clear; it contained a trace of albumen (in proportion to the pus); microscopic examination revealed some pus corpuscles, and a multitude of bacteria singly and in clumps. There were no tube casts. The treatment advised was potassium citrate, 1 grain every two and a half hours, to be cautiously increased until the urine was neutral, the milk to be much diluted with the object of rendering the flow of urine copious and little irritating. The child was kept in one room during the day, and in another at night. The day following, as she seemed to be more uneasy on movement of the body, sodium salicylate ½ grain was added to each dose of the medicine. On the 27th the dose reached was potassium citrate gr. 4, sodium salicylate gr. ½, every two and a half hours. That evening, and the following morning, there were rigors; but thereafter the temperature fell. On August 3rd it again rose, and continued to vary greatly, but after the 9th it remained below normal; for some days it was very low. About the 28th the urine was for a short time neutral, but as the potash was depressing the child and the temperature was subnormal, the dose was diminished. The amount of pus was never large.



TEMPERATURE CHART, DR JAMES RITCHIE'S CASE OF ACUTE PYELITIS.

Although for a considerable time the urine contained flakes with pus, the child made uninterrupted progress after the 9th, and, in five weeks from the commencement of the illness, she was sent to the country. In October, when the urine was examined, it contained no bacteria.

Baginsky reports four similar cases. He sums up their characteristics thus:—1. Severe gastric symptoms, loss of appetite, sickness, pain in the region of the kidneys, and the long continuance of these symptoms. 2. Constipation—one of his cases had membranous material surrounding hard scyballa. 3. The variable character of the urine—at times clear and free from morbid material, at others cloudy, showing serious changes, and containing pus, etc. 4. Well marked, but irregular variations of temperature. 5. The existence in large quantity in the urine of bacillus coli communis.

All of these conditions were exhibited by the above case, with the exception of gastric symptoms, loss of appetite, and sickness. In three cases recorded by Holt the onset was abrupt, with a rigor, as in the case just reported. In his third case, as in the above, when the temperature fell, the child seemed to be perfectly well and ready to laugh, but severely prostrated when the temperature rose. The same irregular and great variations of temperature occurred in his cases also. To account for this variability there are probably two factors, viz., the sensitiveness of the pelvis of the kidney and the early age of the patients. In Holt's cases tenderness over the kidneys was not observed, whereas in Baginsky's four cases, and in the above, tenderness was present; indeed, in the case just recorded, after a diagnosis was made, the writer believed that the shallow respiration was due to the discomfort which was produced by deeper inspiration. The existence of tube casts in some cases is due to an extension of the inflammation to the kidney substance, and is not necessary to the disease.

Etiology.—Acute pyelitis may be caused by irritating drugs; most frequently it arises in connection with irritation by renal calculi; it may also be secondary to local conditions. It is sometimes due to extension of septic inflammation from the bladder; Siebert, at the discussion of a paper by Holt, said that in pyelitis pure and simple there was only one way of infection and that was from the bladder upward. This is uncom-

mon in children, and in the case above reported, as well as in those of Baginsky, there was no vulvo-vaginitis. Acute pyelitis also arises in the course of infectious diseases—scarlet fever, typhoid, diphtheria, malaria and pyæmia—but it occurs also as a primary disease independently of the above causes, and it appears probable that it is due to the presence in the urinary tract of the bacillus coli communis. Baginsky in discussing the question experiences difficulty in the fact that the bacillus coli is found in the urine of children who have no symptoms of illness, and who. at least. have no symptoms of pyelitis. Escherich, Trumpp and Finkelstein have recorded the existence of cystitis in consequence of the entrance into the bladder of the bacillus coli communis. Baginsky points out that there are three channels of infection, viz., through the blood stream, by the lymphatics, and by the urethra. Although the majority of the cases of acute pyelitis in infants occurred in girls, the rule is not an invariable one ; we cannot therefore conclude that infection occurs through the urethra only. The researches of Posner and Lewin, of Marcus, and of Posner and Cohn, have demonstrated that the bacillus coli communis and other organisms can pass through the intestinal wall into the general circulation, into the peritoneal cavity, and into the urine ; also that whereas this is unlikely to occur in health, the frequency of their passage increases with the morbidity of the intestinal wall. Posner and Cohn believe that the organisms found entrance to the kidney by means of the blood stream, because when the renal artery had been previously ligatured the kidney remained sterile. Roos administered pure cultures of bacillus coli communis to several persons and found that it acted as a laxative and eventually produced diarrhœa. He therefore concludes that it has an irritating effect. When the bacillus had been previously killed these effects did not take place. It is known that the bacillus coli varies greatly in virulence. If, as is probable, this organism is a cause of acute pyelitis, it must be present in a virulent form. It is noteworthy that in most of the cases above referred to there was constipation. In the writer's case the pale colour of the stools indicated a want of bile—the natural antiseptic of the bowel—this may have. favoured the development of virulent characters in the bacillus. The constipation and the crack at the anus

afforded a ready gate of entrance to the circulation-blood or lymph stream, and as the child was of rheumatic constitution the acid condition of the urine presented a favourable nidus for growth of the organism.

Diagnosis.—The condition may be suspected in any case which presents considerable and perhaps irregular variations of temperature with apparent integrity of other systems. The condition of the urine—acid, with pus and bacteria—will complete the diagnosis. Cystitis may be excluded by the absence of painful and frequent micturition. The fact may however be recalled that in adults it is not uncommon to have pronounced bladder symptoms in cases which are primarily pyelitis. The amount of pus varies; in some of Holt's cases it was large, in the above case it was never great. In Holt's cases there was no tenderness on pressure over the loins, but in Baginsky's and the above it was well marked. In the one just recorded there was also tenderness on pressure over the abdomen, and the writer believes that the shallow breathing had this as a cause.

Treatment.—This consists chiefly in rendering the urine neutral, and so removing the condition necessary for the growth of the bacillus; the maintaining a copious flow of urine so as to render it as little irritating as possible to the inflamed tracts, also general hygienic care. In the above case marked improvement followed the use of sodium salicylate, the symptoms became worse when it was stopped. The existence of constipation and of anal fissure may require special treatment.

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NOTES ON THE SYMPTOMS AND TREATMENT OF ACUTE PYELITIS IN INFANTS[1]

By JOHN THOMSON, M.D., F.R.C.P.Ed.,
Physician to the Royal Hospital for Sick Children

IN 1894 Dr L. Emmett Holt published an excellent paper on "Three Cases of Acute Pyelitis in Infancy" in the *Archives of Pediatrics*. The account which he gave of these cases, and especially their temperature charts, must have given to many who studied them, besides myself, a feeling that they had probably overlooked the disease hitherto, and a determination not to do so again. Since reading Dr Holt's paper, I have met with the condition eight times; it cannot, therefore, be very rare. Undiagnosed, it is an alarming illness, but under proper treatment it is a very curable one. These considerations, and the fact that our President is reporting one of these cases to the Society this evening, induce me to offer the following notes on my experience of its symptoms and of the effect of treatment upon them.

Clinical Features.

My patients were all girls, and their ages were as follows:—

Baby *A*,	7½ months	Baby *E*,	14 months
Baby *B*,	10 „	Baby *F*,	14 „
Baby *C*,	10 „	Baby *G*,	18 „
Baby *D*,	12 „	Baby *H*,	20 „

Many of the cases which have been hitherto published have been in infants under two years, but the disease occurs in older children also and presents very similar symptoms in them. In almost all the published cases the patients have been girls, but Holt has described one well-marked case in a boy of fourteen months.

In one of my cases (*A*) the parents were very rheumatic; in one (*H*), and very possibly in more, there was a family history of gout. In six of the children the previous health had been excellent. In the other two (*D* and *H*) there had been, and there still persisted, a state of severe chronic dyspepsia and rickets. They had all been artificially fed,

[1] Read before the Edinburgh Obstetrical Society on May 14th, 1902.

some of them injudiciously, but there had been nothing very peculiar about their dieting.

In several of the cases there was a distinct history of a predisposing illness. The two first children seen were suffering from infantile scurvy. In one of these (*H*) this disease had been protracted and recurrent in an unusual degree;[1] in the other (*B*) it was very slight. There was no trace of scurvy discovered in any of the other patients. In two cases, at least, the children had been weakened by an attack of influenza about a month before the onset of the pyelitis. None of them had ever been near any district in which malaria existed.

In all the children but one (*E*) there had been troublesome constipation; in some of them there had been occasional diarrhœal attacks. In several, glycerine injections or suppositories had been used for a prolonged period. In five, at least, there was a history either of soreness about the anus or pain during the act of defæcation, or blood seen in the motions.

Symptoms of General Disturbance.

The symptoms seem generally to have begun rather suddenly with a rapid rise of temperature, so that pneumonia or influenza were suspected. In none of my cases was the onset of the pyrexia accompanied by a convulsion; but in no less than four of them (*A*, *C*, *E*, and *G*), and possibly in more, there were one or more severe chills or rigors. In one of these (*E*) the chill was not severe, and was described by the friend with whom I saw the child as "something like a rigor." In two at least of the others (*A* and *G*) the rigors were frequently repeated and were extremely severe, quite like those seen in adults.

The occurrence of rigors in young infants with acute pyelitis is an interesting point and one which may sometimes be of practical assistance in the diagnosis, when a specimen of the urine has not been obtained. Even in malaria, well marked rigors are said to be rare under two years, although they do sometimes occur. Their place at this age is generally taken by convulsions, or they may be represented merely by a slight coldness of the extremities. In most other circumstances in which an adult would take a rigor a young infant does not do so, although he may perhaps have a convulsion. The four cases

[1] For an account of this case see *Pediatrics*, Sept. 15th, 1896, p. 265.

here referred to are the only instances in which I remember to have seen young children who had rigors; and I have not been able to find an account of any case in which this symptom occurred in a child under two years, who had not malaria, without there being pus in the urine.

Two or three of my patients appeared to be delirious, and two of them (*B* and *E*) were seen to squint frequently. A little vomiting sometimes occurred, and in two or three of the cases the respiration-rate was accelerated as compared with that of the pulse, although no pulmonary disease could be made out.

The temperature (see charts[1]) reaches a high level and is frequently above 104°. Its type is more or less remittent and the chart looks somewhat like one of enteric fever. The rapid effect of the treatment on the temperature is very striking.

Another marked characteristic of the disease is the extreme restlessness and distress which the children display. The apparent discomfort is not, however, continuous. At times the infant may seem quite at her ease, but she soon relapses again into a state of obvious misery. This makes her often look very ill indeed, and yet, considering the degree of the pyrexia and the other serious symptoms there is not, as a rule, very great prostration. The appetite is often well maintained, and consequently the emaciation, although steady, may not be very rapid.

Local Symptoms.

The symptoms pointing directly to disease of the urinary apparatus are often slight and so indefinite that their significance is apt to be overlooked. In five at least of the cases there was a history of screaming attacks apparently due to pain of the nature of colic. Micturition had been accompanied in two by some uneasiness, and in other two occasionally by slight pain. In five, as already mentioned, there were symptoms which suggested the probable recent presence of some excoriation or fissure of the anal mucous membrane. In two of these there was also some soreness of the vulva. Tenderness on palpation of the kidney region seemed to be present in two cases (*A* and *H*). The presence of this symptom, however,

[1] I have to thank Dr James M^c^Lachlan for Chart 1 and Dr H. L. M^c^Kisack for Chart 2.

was difficult to make sure of, as several of the children showed considerable general muscular tenderness and resented handling of any sort.

The State of the Urine.

The reaction of the urine before treatment was always acid—generally extremely so. In one case only (*G*) was a peculiar fœtid odour detected, and that was at the time the symptoms began. Albumin was always present in small amount, but in no case was there much more than might be accounted for by the pus cells present. I did not find tube-casts in any of the cases, but the amount of urine available for examination was usually very small.

Pus was always present in considerable amount; sometimes the urine was turbid with it. A few epithelial cells of various forms were usually to be seen. Blood I never detected, except in one case (*H*) in which there had been scorbutic hæmaturia not very long before. Bacteria are always visible in large numbers in the freshly passed urine, and cultures from it give pure growths of the bacillus coli communis.

No crystals were found, at the time of the illness, in any of the specimens of urine which I examined; but in two at least of the cases (*D* and *H*), large quantities of uric acid and oxalates had been passed shortly before the symptoms of pyelitis began.

Etiology.

As I am dealing now mainly with the symptomatology and treatment of the condition, I must only touch very briefly on the subject of its causation.

The pathogenic organism in these cases is the *bacillus coli communis* first described by Escherich. Its natural home is in the bowel, and it is the chief micro-organism found there. In its proper place its effect is presumably a beneficial one; but when it finds its way into other cavities and other tissues, it is often a cause of serious disease.

Bacteriologists have proved that it may pass from the bowel into the urinary tract by any one of three ways—(1) by the blood-stream; (2) by the lymphatics; and (3) from outside up the urethra. The great preponderance of females among the individuals affected seems to suggest that the last named is

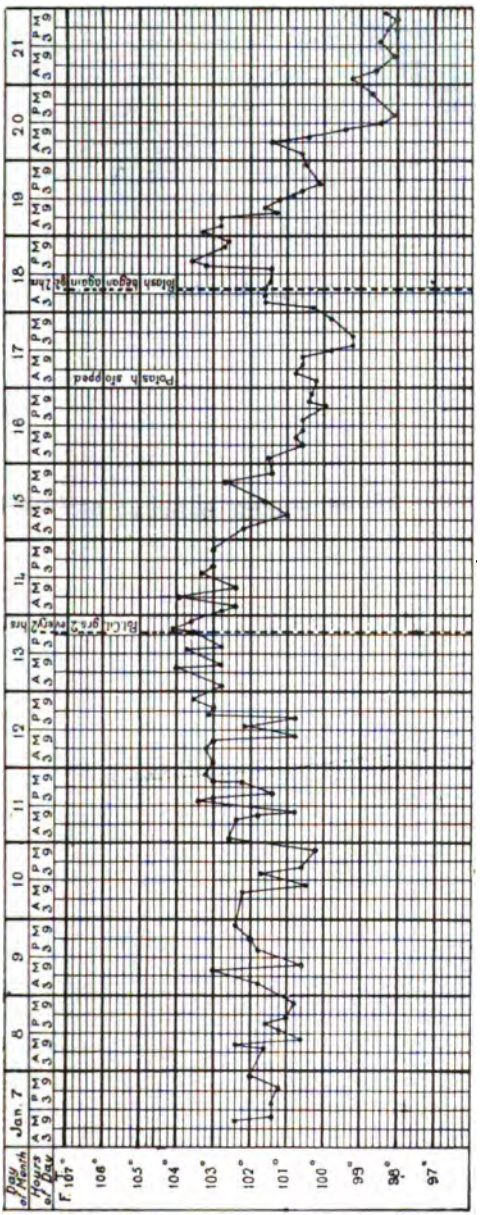

CHART 1.
Acute Pyelitis. Baby B., 10 Months Old.
Shows effect of intermitting the Potash Treatment.

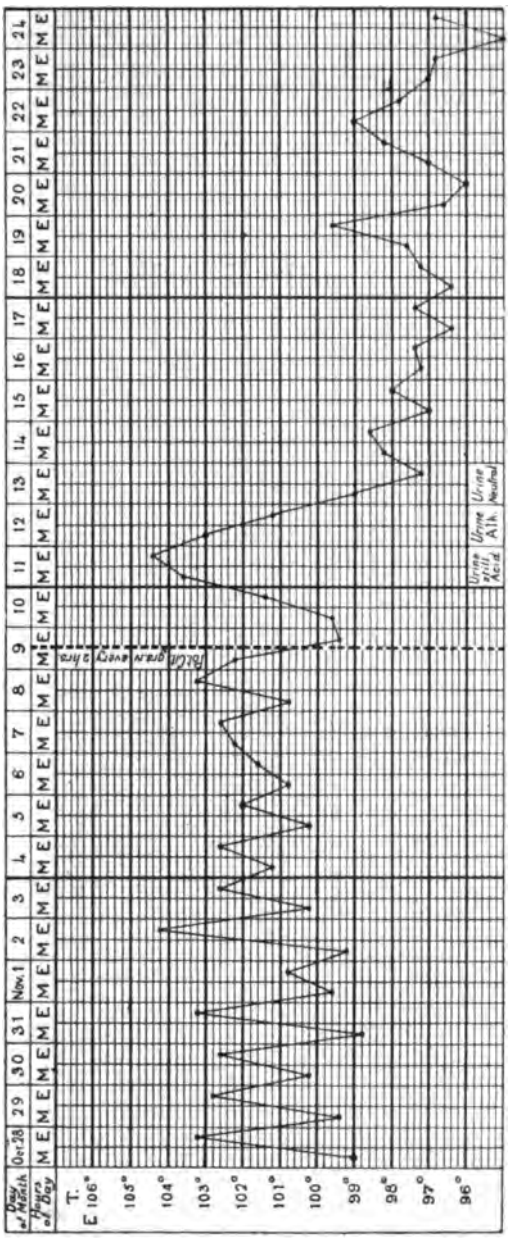

CHART 2.
Acute Pyelitis. Baby G., 18 Months Old.
Shows effect of continuous Potash Treatment.

probably the most frequent pathway for the infective organism. The mere implantation of bacillus coli in the healthy urinary tract is not sufficient to excite inflammation there (Melchior), there must also be a lowering of the vitality of the tissues with which the bacilli are brought in contact. It is probable that such antecedent diseases as scorbutus and influenza may, along with some local irritation, play an important rôle in predisposing to the disease. It seems quite likely that excoriations in the anal region may also be a factor in the causation of the disease.

Diagnosis.

This depends mainly on the presence of pus and bacilli in the urine along with high fever, and on the absence of other causes of these conditions. The chief facts, apart from the examination of the urine, which suggest that a case may be one of pyelitis are :—

1. The pyrexia and the extreme distress, without any sign of organic disease in any other system sufficient to produce them.

2. The presence of rigors, especially if the patient be a child under two years, if malaria can be excluded.

3. Any local tenderness or pain on micturition serves, of course, to draw attention to the urinary tract.

Prognosis.

Under proper treatment the cases improve with striking rapidity, so far as the temperature and the subjective symptoms are concerned. Several weeks, however, usually pass before the pus disappears from the urine. The bacteria may remain very much longer, but they seem to have lost their pathogenic properties to a large extent, and cause neither suppuration nor subjective phenomena.

All my cases recovered complete health, with the exception of one (*D*) who died some months later from other causes altogether. In this case there was no recurrence of the pyelitis.

Treatment.

The main, and the only essential, treatment consists in ***rendering the urine neutral by the administration of alkaline remedies*** as speedily as possible, and in keeping it so until all

the symptoms have disappeared. When this indication is thoroughly carried out, its good results are very remarkable. The pain and uneasiness vanish, and the temperature rapidly falls and remains below normal (see charts). After the pus has ceased to be present in the urine, we find that, with ordinary tonic measures, the urinary tract seems able to defend itself; the organisms cease to cause trouble, and in time they also, doubtless, disappear. I have not, however, watched any case sufficiently long and closely to have evidence on this point.

The alkaline which I have always made use of has been citrate of potash, and it has to be given freely before the urine loses its acidity. In less severe cases, 24 grs. per diem may suffice for this purpose, but it is best to begin with 36 to 48 grs. in the twenty-four hours. Although this amount of alkaline is extremely beneficial to the local condition and rapidly allays both the pain and the fever, it always exerts a depressing action on the general system. The child's temperature becomes subnormal, she seems flabby and nauseated, not infrequently vomits, and may have diarrhœa. No harm, however, follows this temporary depression, and the medicine should be steadily persevered with. I have several times seen the temperature rise again, and the uneasiness return when the potash had been prematurely discontinued or diminished (see Chart 1).

Of the fact that neutralisation or alkalinisation of the urine destroys the bacteria, or at least destroys their virulence, there can be no doubt whatever. Why this should be so when in the natural habitat of the organism in the bowel it flourishes in an alkaline medium, seems somewhat hard to explain.

Antiseptics, when given alone in these cases, are not very efficacious; but in addition to the alkaline treatment they are sometimes distinctly helpful in accelerating the disappearance of the pus. I have seen most good from salol, in doses of one or two grains. Urotropin has seemed much less active in these cases than it often is in other cases of pyuria in which the urine is alkaline. Creasote was found very useful in one case by Baginsky. Boracic acid I have not tried.

Antipyretics have little permanent effect on the temperature, and they are quite unnecessary if the alkaline is given freely enough. Holt tried enormous doses of quinine with curiously little effect.

Sedatives are also unnecessary owing to the rapid relief afforded by the potash.

It is important that the child should be encouraged to drink as much fluid as possible.

The main conclusions of this paper may be stated as follows :—

1. In infant girls, when debilitated by any cause, acute pyelitis may be set up by the immigration of the bacillus coli from the bowel.

2. The presence of the disease is sufficient to occasion very high fever, extreme distress, and a copious deposit of pus and bacteria in acid urine.

3. Unlike any other disease (except malaria), it frequently causes rigors, even in young babies.

4. The presence of anal excoriations has possibly an important etiological significance in these cases.

5. The prognosis (when the case is treated) is altogether favourable, although complete recovery is sometimes delayed for many weeks.

6. The only essential treatment consists in the thorough and long-continued neutralisation of the acid in the urine by the administration of alkaline remedies.

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GASTRO-JEJUNOSTOMY

Twenty-one Consecutive Cases performed for Intrinsic Pyloric Stenosis

By F. M. CAIRD, F.R.C.S.Ed.,
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SINCE Wölfler first performed gastro-enterostomy in 1881 for a case of inoperable obstructive carcinoma of the pylorus, this valuable operation has been variously modified and its field of usefulness greatly extended.

The anastomosis is generally either anterior (Wölfler), the intestine being lifted over the transverse colon; or posterior (von Hacker), when it is carried through the transverse mesocolon. In any case, the loop of intestine may be so adjusted as to permit of the stomach contents passing directly onwards with the peristaltic wave (isoperistaltic), or in a direction opposite to the normal current (antiperistaltic).

The conditions calling for gastro-enterostomy may advantageously be compared with those which require gastrostomy for œsophageal stricture. The patient complains of increasing difficulty in disposing of solid food, relies more and more on fluids, and yet is badly nourished. Progressive emaciation advances, and the temperature tends to be subnormal. Moreover, the pronounced anæmia, the vomiting of undigested food, and the presence of a pyloric tumour, indicate that the risk of postponing interference is very great.

Cases of malignant stenosis are likely to receive only palliation by gastro-enterostomy. We may anticipate some prolongation of life, alleviation of pain, and the avoidance of death from starvation, results, indeed, similar to those which we gain after gastrostomy for stricture. But the rapid improvement in health, and the gain in weight which immediately follow the operation are so extraordinary, that false hopes as to the future are frequently raised.

In cases of simple stenosis, on the other hand, the relief by gastro-enterostomy may be permanent, the patient's life is saved, and the original cause of the obstruction may disappear.

The difficulty of diagnosis as to the nature of pyloric

obstruction is greater than one might expect. An absolute indication of malignant disease is obtained on microscopic examination of a piece of tissue found in the vomit, and this must be a rare event. As a rule, in addition to the presence of a palpable tumour and increasing emaciation, we have to rely upon the well-known associated conditions ascertained after the administration of a test meal. These are the absence of free hydrochloric acid, the presence of lactic acid, certain bacilli, and also undigested food. Such guides may, however, fail us; they are by no means constant evidences, nor can they always be ascertained. Free hydrochloric acid may be present in malignant cases, its absence is more suggestive. There are many apparently simple tumours which exactly simulate carcinoma, are indistinguishable by palpation through the abdominal wall, and even on inspection and handling at a laparotomy, cannot be identified.

It has to be kept in mind that patients suffering from malignant disease of the stomach are susceptible of great improvement under suitable diet and lavage, and that such a gain does not negative the diagnosis. The disease may still be advancing, and therefore it is well in doubtful cases to have resort to an early exploratory operation, when the condition encountered may be dealt with as required.

Prior to opening the abdomen, it is customary to prepare the patient by careful diet and the use of laxatives, so that the intestinal canal may be fairly empty. In gastric cases, the stomach is also washed out thoroughly on the morning of operation.

Such care, judicious enough in simple cases when the patient is not greatly reduced, may be harmful in weak subjects and in those suffering from carcinoma, where it implies the loss of valuable time and strength without corresponding benefit. No farther preparation than an enema and abstinence from breakfast on the morning of operation is advisable in such cases. Although we would gladly welcome a clean and empty stomach, lavage should only be employed if the patient is fairly strong or has been accustomed to this, as it is liable to cause syncope or dangerous prostration.

The extent and nature of the disease implicating the pylorus is ascertained on opening the abdomen in the middle

line, as also the condition of the liver and of the lymphatic glands along the curvatures and in the omentum. Should radical measures be impossible, a suitable site is now selected to form a gastro-enterostomy, or rather gastro-jejunostomy. If the stomach can be lifted up with ease, we prefer the posterior aspect; but when this is difficult of access, the anterior may be chosen. Even when the stomach wall is greatly infiltrated, it is generally possible to find a sufficiently free area.

The presence of ascites and œdema of the gastric walls, together with general infiltration, may contra-indicate operation, since the stitches then are apt to cut their way out, and so much time is consumed that the patient's remaining energies may be too severely taxed. The posterior route possesses many advantages. Thus, on raising the colon and stomach, we may at once see the origin of the jejunum as it emerges from the duodenal fold of peritoneum. We can also recognise it by its relatively thick muscular walls, and trace it upwards.

Our anastomosis should be made at as short a distance from the pylorus as convenient. The assistant, by raising the stomach and colon with one hand, and pressing on its anterior wall with the other, projects the posterior wall against the transverse mesocolon. The surgeon then lacerates the mesocolon over the projected greater curvature of the stomach, and having packed with sterile gauze, lays the loop of jejunum which he has selected against the exposed gastric wall. He now adjusts the intestine, taking care that it lies easily, contriving to arrange for an isoperistaltic anastomosis. Should this require an undue rotation or twisting of the gut, an antiperistaltic anastomosis would be more suitable, and seems to give an equally good result. The stomach and intestine are now united by a continuous Lembert suture, the lumen of each is then completely opened. The pressure of the supporting hand of the assistant is usually sufficient to prevent any escape from the stomach, and the slight danger of contamination is obviated by swabbing, and the protection afforded by the sterile gauze on which the coil rests. We are inclined to deprecate the use of clamps as unnecessary. We have usually made a longitudinal incision in the stomach; that in the intestine has been longitudinal, transverse, or even slightly

oblique, according to convenience, without affecting the result. The posterior half of the union is then completed by a continuous suture, uniting all the coats at their free margin. The aperture in the stomach is now enlarged by cutting a small semilune from off the anterior lip of the incision already made. At the mid-point of this a temporary suture is carried through all the coats, and through the corresponding part of the intestine. As it is pulled upon, the gastric and intestinal margins become parallel, and it is an easy matter to unite with a continuous suture all the coats. Next follows a continuous Lembert suture, and one or two extra stitches may now be introduced at weak points and elsewhere, as required, to ensure the proper lie of the jejunum, and to prevent kinking. The lacerated retracted margins of the mesocolon are tacked to the stomach. The parts which have been exposed are finally sponged with warm salt solution, and are carefully replaced, and the abdomen is closed.

Chloroform has been always employed as the anæsthetic.

The after-treatment during the next few days is of great moment. For the first few days rectal alimentation is given, but if the patient be very well, hot water and milk may be given by mouth the night of the operation. Pain and restlessness are combated by hypodermic injection of morphine. If the patient suffer from eructations of wind, a tendency to sickness and vomiting, and persistently bring up mouthfuls of fluid, great benefit is obtained by washing out the stomach. One has only to glance at the history of cases to recognise how frequently patients give themselves great relief by provoking the act of vomiting, and it is well after operation to get rid of the accumulation of secretion poured forth from a congested stomach, more especially when this is complicated by the presence of a septic, ulcerated neoplasm. If the patient be unaccustomed to the stomach tube, it should be used with great caution, as already indicated.

If the pulse have quickened, and does not respond to washing out,—which is always of the greatest value, and may be repeated if necessary,—30 oz. of sterile salt solution may be transferred into the veins. If this be not followed by permanent relief, the prognosis is bad, sepsis has probably occurred.

Leading features of 15 male and 6 female cases may now be considered. The posterior operation was carried out 13 times, the anterior 8 times; 14 were antiperistaltic, 7 were isoperistaltic.

1. Mr A. M., æt. 51. Carcinoma. Oct. 1895.—Began to suffer from indigestion. Sickness and vomiting after food, followed by intensely acid eructations. Has had to adopt a milk diet. Lavage tried for a month with no relief. Has lost 2 stones in weight during the last 8 weeks. There is great constipation. The patient has been a heavy drinker. He has general abdominal pain, relieved by flexing the limbs, and inducing vomiting. The abdomen is distended. There is a feeling of resistance and tenderness on palpation to the right of the middle line. Stomach dilated. Splashing. Liver enlarged. Hydrochloric acid present.

Anterior antiperistaltic gastro-jejunostomy. 24th August 1896.—A large, firm irregular pyloric carcinoma, with enlargement of lymphatic glands discovered. Patient did well, and was lost sight of till he again appeared in July 1898 feeling strong and well, his constipation having ceased. He complained, however, of a slight ventral hernia at the upper part of the incision. To cure this the abdomen was opened and not a trace of tumour or of enlarged glands could be detected. Patient left in good health and cannot now be traced.

2. Mr G. S., æt. 58. Pyloric carcinoma. Severe gastric pain, aggravated by food. Ill fifteen months. Much wasted. Lost 4½ stones since last year. Distended, tender, resistant abdomen. Spleen enlarged.

Anterior, antiperistaltic gastro-enterostomy. 25th September 1896.—Large infiltrating pyloric mass found. Patient survived only twenty days. The sectio revealed extension to and invasion of the spleen with perforation at the cardiac end of the stomach.

3. Mrs R., æt. 71. Gastric symptoms for eighteen months. Appearance of a large mass fixed to umbilical region. Emaciation, vomiting. Patient was about to die of starvation.

Anterior antiperistaltic gastro-jejunostomy. 27th May

1900.—The operation presented many difficulties, but an anastomosis was effected and gave relief by alleviating the distressing vomiting. Patient died 22nd June 1900.

4. Mrs L., æt. 68. Carcinoma. Ailment began in spring of 1899 with epigastric pain after taking food. This increased in duration and intensity. Vomiting after meals. Finally, only fluids could be taken. Much troubled with constipation. Pain worse when lying on the back or the right side. Oval swelling palpable, size of a duck's egg, lying transversely across epigastric region, moving with respiration. Glands in right groin much enlarged and hard. Weighs 7 st. 2¼ lb. Formerly stout, has lost 5 stones. Hydrochloric acid diminished. Father died, æt. 66, of "tumour in the stomach." Had pain and vomiting. Mother died, æt. 77, of obstruction. A twin brother said to have died of "tumour in the stomach."

Anterior antiperistaltic gastro-jejunostomy. 14th December 1900. — Large tumour of pylorus and lesser curvature. Glands in omentum. Patient was on full ordinary diet and left hospital on 6th January. She reported herself on 16th January; was in good health, all her discomfort had gone, she could eat anything, and weighed 7 st. 7 lb. No tumour could be palpated. Since this date she has been lost sight of.

5. Mr J. M'L., æt. 44. Carcinoma. Ill sixteen months. At first pain and flatulence three hours after meals. Vomiting came on three months ago, and increased until he could not retain any solid food. Constipated. Hard irregular mass felt in the epigastrium, which moves with respiration. No free hydrochloric acid. Weight, 8 st. 10 lb. July 1899 was 11½ st.

Anterior antiperistaltic gastro-jejunostomy. 22nd December 1900.—Good recovery. Patient left hospital 16th January, weighing 8 st. 13 lb. The patient returned looking much better, and it was resolved to explore with a view to a radical operation, when general peritoneal infection was discovered. The patient progressed well, however, and was about to leave for home, when he suddenly fell back dead from cardiac syncope.

6. Mr A. G., æt. 48. Carcinoma. About three years ago symptoms of dyspepsia came on, pain, distension, and slight vomiting two or three hours after food. In July much worse. Lavage used with some benefit, but increasing trouble and loss of weight has occurred since October. Abdomen much distended. Peristaltic waves seen passing towards pylorus, where there is a large resistant area. Stomach 1 inch below pylorus. Hydrochloric acid present in small amount. Weighed 11 st. in June 1900; at present only 6 st. 7 lb.

Anterior antiperistaltic gastro-jejunostomy. 26th December 1900. — Large mobile tumour, not so hard as usual, extending into stomach. Gastric walls very thick and vascular. Small intestine very vascular. No enlarged glands. Some gastric and intestinal contents escaped during operation. Good recovery. Left hospital 14th January weighing 6 st. 11½ lb. Is at present strong and well and scales over 10 st. No tumour can be felt.

7. Mr Z., æt. 63. Carcinoma. A big-boned, tall man, much wasted, weighs only 7 st. Has suffered from dyspepsia for two years and can only retain a little milk. Suffers great pain after food. There is a large mobile pyloric tumour.

Anterior antiperistaltic gastro-jejunostomy. 27th December 1900.—No sickness, but pulse rose to 120, and he was washed out on 30th and 31st. Soft boiled egg and chicken tea given next day. Patient very intractable and difficult to manage. On the couch, 3rd January. Required bromide and nepenthe for some time. Eventually made a good recovery. In July 1901 he returned, weighing 9 st. 8½ lb., very hypochondriacal, and complaining of three nodules which lay in the cicatrix. These were excised and the abdomen again opened. The tumour had almost entirely disappeared. The nodules showed carcinomatous alveoli, with excessive fibrous matrix. Patient now in an asylum.

8. Mr D. M., æt. 35. Innocent inflammatory tumour of pylorus, with adhesions due to gastric ulcer. Patient a tall, strongly-built, but pale and thin miner; addicted to alcohol. Has complained of pain after food and by night, vomiting and hæmatemesis for the last four years. For this he has been

frequently treated. A tumour is felt just below the tip of the ensiform cartilage, but the area is too tender to permit of careful palpation. It moves with respiration, descending from under cover of the ensiform. Stomach not dilated. Weighs 9 st.

Posterior antiperistaltic gastro-jejunostomy. 28th December 1900.—There was a pyloric tumour the size of a golf ball, of a wooden rather than stony hardness, and a dense mass of adhesions stretched from the liver to the lesser curvature. One large gland on the greater curvature. Progress good. Weighs 8 st. 8 lb., 10th January 1901. On 12th February 1901 weighed 11 st. 3 lb.; looks and feels well. Can eat anything. Pain gone. No trace of tumour can be felt. At present enjoys good health.

9. Mr J. A., æt. 64. Carcinoma. A healthy and temperate man, began to complain four months ago of pain in the stomach, which was at first relieved, but latterly aggravated on taking food. About an hour after meals pain felt below xiphisternum and a little to the left. No vomiting. Marked constipation. Has been getting thinner. Weighs 8 st. 9½ lb. A tumour the size of a walnut can be felt 1½ in. below the xiphisternum to the left of the mid line; it moves with respiration and is slightly tender. Leading from it to the left costal margin is an indefinite resistance. Hydrochloric acid, a mere trace. Atheromatous vessels.

Posterior antiperistaltic gastro-jejunostomy. 3rd February 1901.—A large tumour found, hard, affecting the pyloric third of the stomach, both anterior and posterior walls, and running up along the larger curvature. Numerous enlarged glands. Stomach small and rather contracted. The patient vomited some blood after the operation, and this continued on the following day, when he passed flatus and so was not washed out. The abdominal wound became septic and he suffered from diarrhœa, and was not out of bed till 2nd March, when he weighed 7 st. 6 lb. When last seen on 14th March he was progressing favourably, and weighed 7 st. 9¼ lb.

10. Mrs M. R., æt 34. Carcinoma. Previously healthy, she had a sudden attack of coffee-ground vomiting four months

ago, with pain and tenderness. This passed off under rest in bed and treatment, but she has lost flesh since, is anæmic and suffers from increasing weakness. There is constant gastric pain intensified after meals; the stomach becomes swollen an hour after food. She weighs 5 st. 9½ lb. A tender, rounded, mobile mass about 3½ in. in diameter can be palpated in the epigastric and umbilical regions, its lower edge ¼ in. above the navel.

Posterior antiperistaltic gastro-jejunostomy. 10th April 1901.—Stomach washed out prior to operation. Tumour chiefly involved posterior aspect of stomach and did not quite reach the pylorus. A chain of infected glands passed along the lesser curvature to the œsophagus. On the morning after the operation the patient had pain, sickness and vomiting. The stomach was washed out at 11 A.M., and the patient thereafter did well.

11. Mr D. F., æt. 66. Carcinoma. About two and a half months ago food began to lie heavy on his stomach, and pain came on fifteen minutes after eating. He lost appetite and only took milk. There has been no vomiting or nausea, but a bad taste in the mouth annoys him. Much constipation. Formerly he weighed 14 stone, now only 11½. No free hydrochloric acid. No definite tumour found, but there is tenderness and tension of the abdomen to the right of the epigastric region extending into the right hypochondrium.

Posterior antiperistaltic gastro-jejunostomy. 29th May 1901. —Large tumour present, not completely occluding pylorus, with extensive glandular infection. Serous and muscular coats very friable and union effected with difficulty. Patient slept well after operation, had a pipe and wrote a few words to his wife. On the 30th he was troubled with vomiting, which distressed him again on the following day. As the pulse remained steady, about 104, and temperature normal, he had calomel and an enema, thereupon he had a stool and passed flatus. On 1st June peptonised milk was given; he slept a great deal but still vomited at intervals. On 2nd June vomiting still persisted, and he was washed out, getting great relief and bearing the operation well. His pulse fell below 100. Vomiting returned in the evening and he was again washed out, and he passed a good night free from sickness. 3rd June he slept most of

the day. Vomiting again recurred with a fæcal odour, but he slept well, having had ¼ grain morphia. On the 4th June he suddenly collapsed, was transfused, and in the belief that a circulus vitiosus might have become established the abdomen was again opened under cocaine, but everything was found normal. After a slight rally he began to sink and expired on the 5th at 10 P.M., a week after operation.

At the sectio there was found broncho-pneumonia of both lungs; liver fatty with two secondary nodules. Infected glands lay along the spine, and one, softening, to the right of the upper part of the trachea. Kidneys congested. No peritonitis.

12. Mr W. R., æt. 52. Carcinoma. His father, mother, and their family (ten) all suffered from stomach ailment. Patient of alcoholic habit, suffered from dyspepsia, vomiting and water-brash twelve years ago. He vomited blood eight years ago and two years ago. Since January 1901 has been getting worse and has lost one and a half stone. Pain comes on immediately after a meal, is most constant in the epigastrium, is worst at night and is relieved by vomiting. Is very constipated. No free hydrochloric acid. No palpable tumour.

Posterior antiperistaltic gastro-jejunostomy. 3rd June 1901.—A capacious, thin-walled stomach with a carcinomatous tumour of pylorus extending to the lesser curvature. Infected glands on the lesser and greater curvature and scattered throughout the omentum. The patient did well, being troubled with flatulence relieved by sitting up in bed, and having a motion on the 6th and 8th. On the morning of the 9th he became restless and began to bring up mouthfuls of dark greenish fluid at considerable intervals, and was again relieved by being propped up in bed. At 1 P.M. he began to collapse, had cold extremities and 30 oz. saline solution were transfused. He rallied for a short time and then rapidly sank, dying at 8 A.M. on 10th June.

Sectio.—The gastro-enterostomy wound was perfect. A layer of pus lay between the parietal peritoneum and the anterior aspect of the omentum and small intestine. This localised peritonitis did not extend to the pelvis or elsewhere Brown atrophy of heart. Emphysema and œdema of bases of the lungs.

13. Mrs D., æt. 30. Carcinoma. Dilated stomach. Was in service in 1890 where she had bad and insufficient food. Pain after meals and interscapular pain then developed. She has been dyspeptic ever since. In 1894 the pain was associated with vomiting which gave her relief. In 1898 hæmatemesis came on and another attack in the following year. She was fairly well till March and April 1901. Recently pain has become constant and hæmatemesis and vomiting have returned. The patient is greatly emaciated, weighs 7 st. 10½ lb. There is well-marked peristalsis of the stomach, no palpable tumour, but marked tenderness over an area from the ensiform cartilage downwards for 2½ inches, and 1 inch transversely. The lower border of the stomach lies 2½ inches below the umbilicus.

Posterior antiperistaltic gastro-jejunostomy. 31st July 1901.—There was found a hard wooden-like constricting area about two fingers' breadth encircling the stomach about 3 inches from the pylorus, which would not admit the little finger invaginating the stomach wall. Some enlarged but soft glands were found in the omentum.

Patient did well, was fed with milk on the night of the operation. Weighed 9 st. 2¼ lb. in August and was the picture of health when last seen in December 1901.

14. Mr T. M., æt. 39. Carcinoma. In August 1900, pain after food referred to lower end of sternum, and later to left costal margin in mammary line. He was also troubled with flatulence and constipation. In January 1901 the gastric pain after food was almost always present. He suffered from cold extremities. About end of June he began to vomit every two or three days, and in four weeks more, at night also. This relieved him. No hæmatemesis. Formerly he weighed 10 st. 7 lb., now 8 st. No free hydrochloric acid. Mobile palpable tumour sometimes felt in pyloric region. Stomach dilated to below umbilicus. Posterior isoperistaltic gastro-jejunostomy. 17th August 1901.—Much free fluid escaped from peritoneal cavity. Large malignant tumour of pylorus found with many enlarged glands. Very vascular mesocolon. At end of operation (one hour) pulse dropped to 36, very weak. Restored by hypodermic of strychnine and

administration of salines by rectum. Further progress satisfactory although badly troubled with cough, expectoration and swollen feet. Left for Medical home on September 11th. On November 6th very well, weighs 9 st. 7 lb. No tumour to be felt. Patient had no further gastric trouble, but died of phthisis pulmonalis, 10th December 1901. Sectio refused.

15. Mrs J. M., æt. 52. Carcinoma. A sallow, emaciated woman. Pain came on gradually in the right side about Christmas 1900. In a fortnight acute attacks ensued, followed and relieved by vomiting. Pain is now continuous with exacerbations; vomiting and sickness occur at intervals of two or fourteen days. She became paler and thinner. Formerly she weighed 12 st., five weeks ago 10 st. 7¾ lb., now 9 st. 8 lb. There is a small nodular mobile tumour in the epigastric region. Stomach extends 1 inch above umbilicus. There is slight œdema of skin between ensiform cartilage and umbilicus. No free acid in vomit. Blood corpuscles, food, debris and nucleated round cells present. One brother died æt. 35 of "ulcerated stomach."

Posterior isoperistaltic gastro-jejunostomy. 31st August 1901.—A hard, almost stone-like mass occupied the pyloric third of the stomach ceasing an inch short of the pylorus.

The patient was sick and restless after the operation with a rapid pulse, and received saline fluid per rectum, brandy and tincture of strophanthus. On the following morning the pulse still ran between 120 and 130. She was washed out, and sickness ceased till 8:30 P.M., and milk was retained. The pulse still rose, and patient expired at 7 P.M., 3rd Sept. T. 100·3. Sectio revealed a fungating carcinoma. Not a trace of peritonitis, wound perfect.

16. Mr S., æt. 50. Illness began six or seven months ago with loss of appetite, flatulence, water-brash, and loss of weight. He has lost 5 st. in six months. No vomiting till two weeks ago; almost daily an hour or so after meals; not a large quantity. Coffee-ground-like on more than one occasion. Has lived on slops lately, and can only take a few mouthfuls at a time, whereupon the stomach feels full. No pain. Slight

fulness and resistance in epigastric region below left costal margin. Marked tenderness on deep palpation below umbilicus. No free hydrochloric acid. Bowels constipated.

Posterior isoperistaltic gastro-jejunostomy. 19th Nov. 1901. —Carcinoma of pylorus and body of stomach. Nodules in omentum. Anastomosis effected with some difficulty from wide extent of disease and fixation of organ. Patient rapidly improved. Within a week was eating hare soup. Vomiting ceased. Patient began to fail in February, and died in March 1902.

17. Mr J. G., æt. 50. Carcinoma. Jaundice and indigestion developed as the result of a chill in April 1901. Dyspepsia continued, and the patient suffered from swelling after food, but no pain or nausea. He sometimes brought up mouthfuls of food at times, two hours after food, and induced vomiting himself, as he thereby gained relief. Appetite good, often voracious. A tumour was detected, and during October he was treated in the medical wards, where he gained 4 lb. and greatly improved. There has been no vomiting for the past five weeks. He is an emaciated man with a trace of jaundice; weighs 8 st. 7 lb. A rounded firm swelling moving with respiration can be felt $1\frac{3}{4}$ inches above the umbilicus and $1\frac{3}{4}$ inches to the right of the middle line, tender at one spot on deep pressure only. Stomach 2 inches below umbilicus.

Posterior isoperistaltic gastro-jejunostomy. 2nd November 1901.—Pylorus involved in a mass of carcinoma, and a second rounded mass extending from it to the liver. Glands also involved. Did not sleep after operation; had continuous pain and flatulence. Vomited at 2 and 9 A.M., a brownish, bilious, odourless fluid. Vomited at 8 P.M. Pulse rose to 128. Washed out at midnight. 4th.—No more vomiting or sickness. Pulse still rapid, 120. T. 99·8. Afternoon pulse 130. T. 100·6. 7.30, transfused 30 oz. saline solution. 10.30, pulse 114, much stronger. Patient stimulated with whisky and strophanthus, progressed well, was out of bed on 18th November, and was about to go home on 21st November, when he suddenly expired from cardiac failure.

Sectio.—In addition to pyloric growth, etc., the head of the pancreas was found infiltrated, and there was a large secondary

mass in the upper surface of the liver. Heart showed marked brown atrophy, and there was consolidation of the lower lobe of the right lung.

18. Mrs M., æt. 65. Carcinoma. An emaciated, anæmic woman, who has always suffered from indigestion. A year ago she noticed that she had a faint feeling and a desire for food at odd times, even during the night. In June 1901 she began to experience severe pain in the stomach three-quarters of an hour after food, which lasted for three or four hours. She had intense nausea at times, but rarely vomited. Pain prevents her from lying on her back or left side. Present weight 7 st. 8¼ lb., formerly 10 st. 11 lb. For the last six months there has been constipation. A nodular tumour occupies the epigastric region. There is slight swelling of the legs. Father died æt. 60 of jaundice, and a sister of cancer of the stomach.

Anterior isoperistaltic gastro-jejunostomy. 31st January 1902.—Large white pyloric tumour invading lesser curvature and infiltrating stomach wall. Stomach fixed. Much glandular infection. Anastomosis effected with much difficulty, the healthy gastric area was so small, and the sutures cut out through the friable tissue. Restless afternoon. No sickness during night. Vomited 6 oz. brownish material next forenoon 2nd February.—Some sickness, less vomiting, pulse rise 120. 3rd Feb.—Pulse 117. Restless morning; had a cup of tea about 10·30, and immediately a deep-red flush appeared over the face. Patient suddenly became very weak about 1 P.M., and died at 3 P.M. Brown fluid found on dressing.

Sectio.—No peritonitis, but brown fluid present in peritoneum and leakage from sutures, which had cut out through the upper part of the anastomosis.

19. Mr T. S., æt. 48. Carcinoma. Nine months ago patient experienced a sense of pressure in the epigastric region, which came on about twenty minutes after any heavy meal, and was succeeded a few minutes later by a dull pain and water-brash. He gave up solid food and had a milk diet. Three months later he vomited twice, and was relieved thereby. Five weeks ago attacks of vomiting came on every four or seven days, half an hour after food, and persisted at intervals

of ten minutes for twelve or fourteen hours. He weighs 8 st. ¾ lb., prior to his illness he was 10 st. He has of late had some coffee-ground vomit. There is a distinct feeling of resistance in the epigastrium, extending about 5 in. in breadth.

Posterior isoperistaltic gastro-jejunostomy. 31st January 1902.—Stomach small, rather fixed. The pylorus and adjacent parts were implicated in a hard mass, beyond which the walls were much thickened and infiltrated. The greater part of the growth lay under cover of the liver. Gland in omentum. Patient did well; had some vomiting on five occasions, which ceased on 5th February. It recurred, however, and he was washed out on the 11th and 17th. Prior to and after the operation the vomit contained blood, hence the stomach tube was rather feared. He required rectal alimentation, and looked so feeble that on the 20th, 22nd and 23rd he received 4 oz. daily of sterilised olive oil injected into his gluteus maximus. He got out of bed on 4th March; his temperature still remained subnormal. On 28th April he was reported as much stouter, and able to eat anything.

20. Mr J. B., æt. 40. Carcinoma. Patient got thin and lost appetite about June 1901. Discomfort after food, and vomiting set in about August. Lavage and milk diet gave temporary relief. The vomited matter was brownish and the stools often black. Formerly weighed 11 st., now only 8 st. No free hydrochloric acid. Egg-like swelling, moving with respiration, below ensiform cartilage.

Posterior isoperistaltic gastro-jejunostomy. 24th February 1902.—Prior to operation stomach washed out. Vascular œdematous peritoneum. Pyloric tumour, with extensive omental and mesenteric glandular infection. Passed a fair night; pulse rising 112. T. 99·4, resp. 22. Washed out. Passed flatus. Out of bed 17th March.

21. Mr A. F., æt. 60. Carcinoma. In November 1901 lost taste for butcher-meat and felt weak. Increasing loss of weight and strength and discomfort followed. For last seven days vomiting came on, which gave relief. An area of resistance and dulness in right hypochondrium and epigastrium. Weighs 8 st. 3 lb.

Posterior isoperistaltic gastro-jejunostomy. 21st February 1902.—A large mass with a cicatricial-looking surface occupied the pylorus and extended into the stomach. It involved the anterior aspect mainly. There were no enlarged glands seen. Out of bed 3rd April.

Four deaths occurred within seven days, as follows—

Case 11, aged 66, began to vomit the day after operation and derived no permanent benefit from washing out. It was feared that a *Circulus vitiosus* had developed. In this condition the duodenum and jejunum become filled with biliary and pancreatic secretion, and by passive distension tend to compress their companion exit loop, at the point of anastomosis. Incessant vomiting and refilling of the stomach take place, and the patient dies of starvation. The circulus vitiosus has been ascribed to various causes associated with the operation, such as the line of peristalsis and the formation of spurs, to avoid which more complicated forms of gastro-enterostomy have been devised by Braun, Kocher, Roux, etc. Mikulicz has returned to the anterior operation, regarding insufficient length of the duodenal end as unfavourable, and making his anastomosis about 50 centimetres from the pylorus, in the belief that this length of bowel will have greater peristaltic force. We have always endeavoured to make the anastomosis as close to the duodenum as possible. As there was no evidence of peritonitis in this case, the abdomen was re-opened to remedy this supposed circulus vitiosus, but everything was found normal. The pulmonary condition discovered at the autopsy is by no means rare in gastric surgery, and has been ascribed to the passage of thrombi, the high site of the abdominal incision interfering with respiration, to the prolonged anæsthesia, etc., but most probably is of septic origin.

Case 12, aged 52, revealed at the sectio an unsuspected localised peritonitis which, from its site and localisation, might justifiably be ascribed to aerial infection.

Case 15 was mentally depressed and physically unable to stand the operation. The sectio gave no definite information as to the fatal issue.

Case 18 should also not have been subjected to operation, as was clearly shown by the result.

Of the remaining seventeen patients, six are since dead,

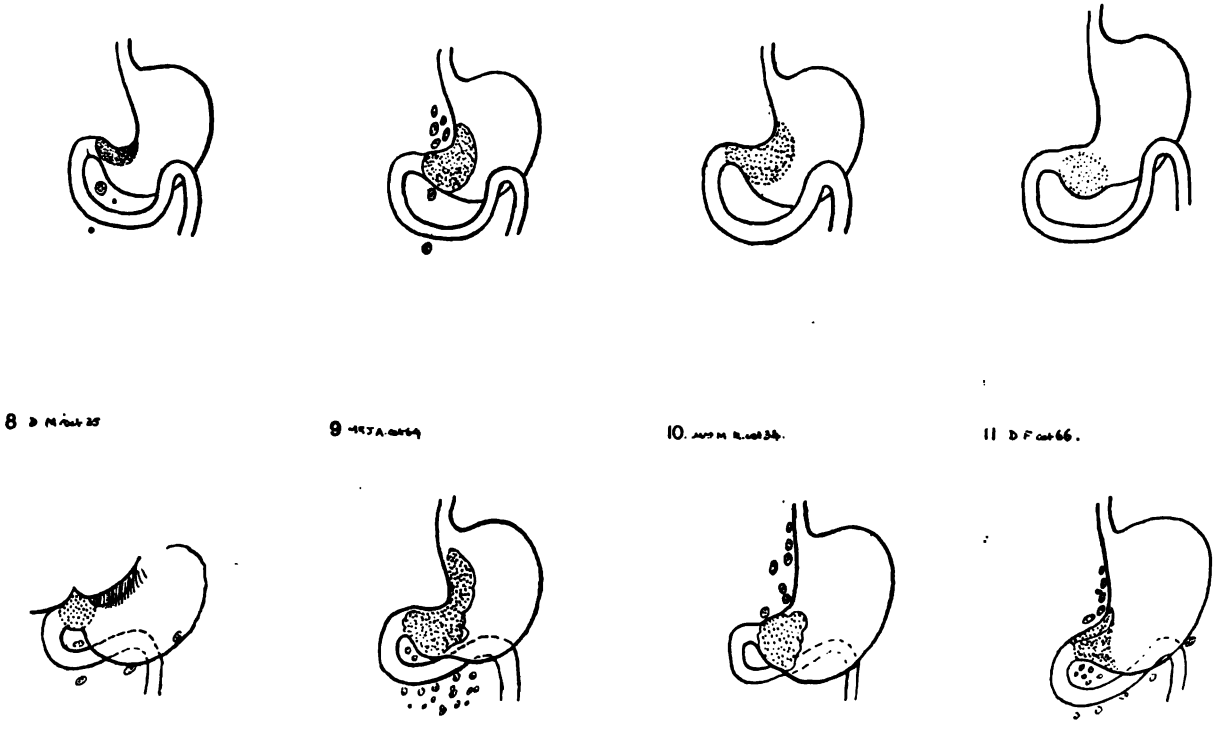
four have been lost sight of, seven are known to be alive and in good health.

The above cases may serve to illustrate the mortality associated with gastro-enterostomy performed on patients who, with one exception, were supposed to suffer from carcinoma, and whose general state of health and local condition contra-indicated excision of the disease. Every case that recovered derived benefit. Cases that one imagined would rapidly succumb still survive and their tumours are no longer to be palpated. This implies either a curious lack of diagnostic skill in those concerned, or the existence of a class of malignant tumour whose life history and reaction to laparotomy is as yet undefined. We have had similar experience of other "malignant tumours" which could not be removed on abdominal exploration. In this connection also we cannot do better than quote from an extensive and instructive paper by Steudel (*Beiträge zur Klinischen Chirurgie*, vol. xxiii., 1899).

"Wölfler in the 25th Congress of German Surgeons operated on a patient—who begged him to do so on her knees—and she remained at the head of her house for other two and a half years.

"Rosenheim showed in the Berlin Medical Society on the 4th November 1896 a lady in a fair state of nutrition, whom he had under treatment three years before for carcinoma of the pylorus. She could not make up her mind for a radical operation, but, after all, had to undergo gastro-enterostomy two and a half years ago for stenosis. In the discussion Ewald and König knew of similar cases which had lived three years after gastro-enterostomy. Hahn communicated one case where all those present at the gastro-enterostomy were under the impression it was a carcinoma, and the patient died seven years later, during which time he had always felt well. Krönlein related a case of a laparotomy, where he had found a tumour of the pylorus the size of a walnut and slightly fixed, and a second and larger growth in the ligamentum gastrocolicum. On account of the second tumour he could not carry out his plan of pylorectomy. The patient lived thus for seven years in the same state of health.

Krönlein therefore considers carcinoma out of the question.

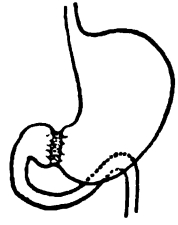


TO ILLUSTRATE MR CAIRD'S PAPER.

Definite Tumours and Infected Lymphatic Glands indicated by outline and dots; Areas of Infiltration by dots only.

F. M. C. del.

13 Mrs D æt 30.



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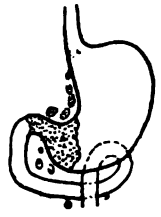

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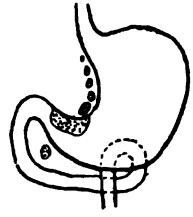

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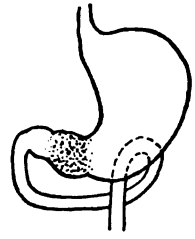

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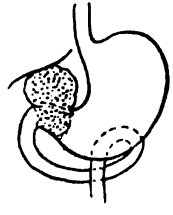

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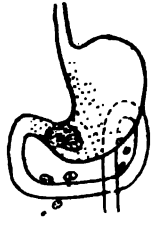

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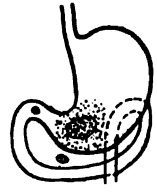

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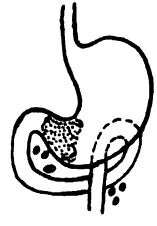

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Definite Tumours and Infected Lymphatic Glands indicated by outline and dots; Areas of Infiltration by dots only.

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He relates other cases where, after the exploratory laparotomy, noticeable improvement took place, the patients believed themselves cured, and lived for three years after. The most interesting contribution, however, on this subject is made by Alsberg (*Münchener Med. Wochenschrift*, 1896, No. 50). The carcinoma found on operation was quiescent for three years, during which time the patient felt himself quite well: after this it began to grow again, and caused death in five months. At the sectio a Colloid carcinoma was found, but the lumps on the peritoneum, on account of which the radical operation was not undertaken, had entirely disappeared.

All these observations show that, in regard to a laparotomy or gastro-enterostomy, there can be a period when the growth is arrested, may be for years, indeed it might be said that it even seems to diminish, perhaps similarly to those cases of peritoneal tuberculosis. Alsberg's case is noteworthy in so far that nodules in the peritoneum, which on operation decided in favour of gastro-enterostomy, were not to be found at the sectio.

It will be a task of the next years to observe these important things; one must try to obtain a sectio on those who die later after operation. Also it might be recommended at every gastro-enterostomy or exploratory laparotomy for carcinoma to procure a part of the tumour, when possible, or a metastic gland for pathological examination, to have a proof of the nature of the disease. Perhaps it will be discovered that a certain kind of carcinoma, perhaps the Colloid carcinomas, which also in regard to their metastasis are relatively simple, show a tendency after laparotomy to stand still, or that the question is not one of carcinoma but of sarcoma. At any rate it is practically important that there is a considerable number of cases where one must diagnose carcinoma of the stomach from the clinical point of view as well as from the condition found on operation, *who live for years after gastro-enterostomy in apparent comfort and good health.*"

Stendal also reports 4 cases from Czerny's clinic where excision could not be practised, but who enjoyed good health 2½, 4, 5, and 5½ years after gastro-enterostomy. Similar illustrative cases may be found in a valuable article by Armin Huber (*Ueber Chirurgische Hilfe bei Magenkrankheiten, Correspond-Blatt für Schweizeraertze*, March 1902).

THE SCHOOL AND ITS EFFECT UPON THE HEALTH OF GIRLS

By W. B. DRUMMOND, M.B., C.M., M.R.C.P.Ed.

IF the recent plea of Earl Grey, in the columns of the *Times*, for "a periodical stock-taking of our children throughout the country" could be carried into effect, it would doubtless be possible to formulate some more definite conclusions as to the influence of school life upon the health of school children, than were reached by the "Boston Society for Medical Improvement" in a recent discussion upon "The School and its effect upon the Health of Girls" (1). It is to be feared, however, that the remark of one of the speakers that "neither the critics nor the defenders of the schools are in a position to enlighten the public on the matter, for the simple reason that no adequate investigation of the facts has been attempted hitherto," is as applicable to our own country as to America. This need not, however, deter us from directing attention to some aspects of a subject of great, indeed of national importance.

What is the actual state of the health of schoolgirls?—There is a widespread idea that girls are rather delicate creatures compared to their brothers, and it is to be feared that even school authorities not infrequently regard "the enjoyment of indifferent health" as not unnatural in a schoolgirl. If a girl is not sufficiently ill to be in the hands of the doctor, it excites no comment if she is not sufficiently well to take pleasure in active exercise. A study of the tables of infantile mortality, however, does not support the idea that girls are *naturally* more weakly than boys. Newsholme (2) tells us that "the rate of mortality of boys in every month of the first year of life exceeds that of girls, so that, in spite of the much larger number of boys at birth, they are fewer in number than girls at the end of the first year." The tables of the mean annual rate of mortality, moreover, for the years 1891-5, show us that the female mortality was lower than the male at all ages except five to twenty. That is to say, the only years in which the death-rate of females is as great as that of males are those in which girls are at school, and those immediately succeeding the period of school life, in which any evil effects of school upon health would continue to be felt. It is worth noting, however, that even during this period the female mortality is greater than the male only by a small decimal per thousand. These figures, so far as they go, seem to suggest—it would be incautious to say prove—that girls enter the world with at least as good vitality as boys, and

that during the school period some influence is at work which raises to a slight degree the death-rate among girls as compared with boys.

It is when we attempt to gain some more accurate idea of the actual state of health of schoolgirls that the lack of sufficiently numerous and sufficiently systematic observations becomes apparent. The statistics which we do possess display such great discrepancies that no comparison can be instituted between the figures of different observers. For instance, we find Dr Combe (3) reporting of the schoolgirls of Copenhagen that of twelve-year-old girls 60·6 per cent. are sickly, of thirteen-year-old girls 62·7 per cent., and of fourteen-year-old girls 57·1 per cent. Slightly higher figures are given by the same observer for girls in Lausanne (4). Compare with these the figures given by Mr Arthur MacDonald (5) as a result of his observations on school children at Washington. MacDonald reports of twelve-year-old girls that 6·74 per cent. were "sickly," 6·94 per cent. at thirteen years, and 4·20 per cent. at fourteen years.

One of the Boston speakers (Dr Brackett) quotes the following figures in his paper:—"Hertel's investigation of 4352 school children found in 3141 boys 31 per cent., and in 1211 girls 39 per cent. who had chronic disorders. By commissions appointed in Sweden and Denmark (6), it was found by one that of 17,595 boys 29 per cent., and of 11,646 girls 41 per cent. had chronic disorders. By the other it was found that of 11,210 boys 44 per cent., and of 3000 girls 61 per cent. came under this class. It is noteworthy, this report goes on to say, that one-half of the girls were chronically ill in their thirteenth year. Upon entering school 20 per cent. were chronically ill; but the curve of illness rises rapidly after entering until in the eighth year 28 per cent. were ill."

Mrs Henry Sidgwick (7), in her "Health Statistics of Women Students of Cambridge and Oxford," gives the following percentages of English girls as being in poor or indifferent health:—3 to 8 years of age 11·57; 8 to 14 years of age 10·13; 14 to 18 years of age 10·89.

Much lower percentages are given by Dr Warner (8) in his observations upon 100,000 children in English schools.

These figures certainly seem to point to a very grave state of affairs as regards the health of the school population in certain parts of the world, but it would obviously be unfair to argue from them, *e.g.* that the schoolgirls of Lausanne are ten times as sickly as those of Washington, without knowing precisely what standard of health was taken by the different observers, and what degree of departure from the standard was reckoned as "sickliness."

The health of girls after leaving school.—The most important questions concerning the school life of girls arise in connection with the appearance of puberty. This is the period when the greatest strain is being thrown upon a girl's physical resources. It is usually, in addition, the period when the greatest amount of mental work is expected, and the greatest strain of the examination system is felt. In many instances the injurious effects of such strain are not felt at the time, but are manifested in later years in different ways. At the Boston meeting Dr Jane Kelly (9) read a short paper on this aspect of the subject, in which she gave the following figures :—" Observation of 2000 students in finishing schools and colleges gave the following tabulated results :—30 per cent. were either wearing glasses or ordered to have their eyes examined by a specialist ; 6 per cent. showed defective hearing ; 4 per cent. had flat-foot ; 5 per cent. had weak lungs ; 4 per cent. had heart trouble ; 2 per cent. had kidney lesions. Menstrual difficulties were most marked : 75 per cent. were found with irregularities dating from puberty ; 60 per cent. had to give up from one-half to two days ; and 90 per cent. had leucorrhœa."

Attention may also be called to the recently expressed views of Dr Stanley Hall (10), the great American educationist. Dr Stanley Hall delivered, last summer, a course of lectures on Adolescence at the Clark University Summer School. In one of these lectures he discusses the influence of the system of education in America, and especially of secondary and collegiate courses for girls, upon the preparation of women for their high office as wives and mothers. He is quoted as asserting that in the States only 25 per cent. of college-educated women on an average marry ; of these, 66 per cent. have children. " Health considerations, it is said, rarely permit the birth of more than one child, and 12 per cent. of the children die in infancy." " It looks as if the colleges were training for independence, and support, and celibacy, and that they let motherhood take care of itself."

Without full consideration of the conditions under which the various figures quoted above were collected, it is impossible to draw any general conclusions from them, except, indeed, that they all support the common belief in the frequency of indisposition, permanent or temporary, among schoolgirls.

No doubt there is another side to this question, and the girl-athlete of our own day is responsible for the opinion, strongly held by many people, that the modern girl is a great improvement physically upon her mother and her aunts. That there is a certain amount of truth in this opinion there can be little doubt, so far as a limited section of society is concerned. But there can be equally little doubt that in all sections of

society certain diseases, such as anæmia and postural deformities, are common among girls, and decidedly rare in boys.

How schools injure health.—Admitting the existence of a very considerable, but variable, amount of ill-health among schoolgirls, we may now consider the question of the ways in which schools are responsible, in part, at least, for this state of affairs. The following conditions are specially worthy of consideration :—

1. School hygiene. The conditions necessary for healthy development in childhood—abundance of suitable food, proper clothing, fresh air at home and in school, plenty of out-door play, and sufficient sleep—are fairly well known, and the least that can be asked of any school is that it should not interfere with these essentials. The study of school hygiene has, in recent years, excited a great deal of interest in all civilised countries, as is evidenced by the enormous volume of the literature of the subject. As a result of the labour expended, our knowledge of the best methods of building schools, of arranging class-rooms, of warming, ventilating, lighting and heating them, has advanced greatly. The designing of school furniture, adjustable to the varying proportions of the children and adaptable to the different needs of the school work, has called forth the exercise of physiological knowledge and mechanical ingenuity. Even the scandals arising in connection with the English barrack schools have served the good purpose of emphasising the evils of overcrowding, and the necessity of some form of home life for the children, in association with their life in school. Failure on the part of many schools to meet our present knowledge of hygiene, whether from penuriousness or apathy, must be placed first among the ways in which school life may interfere with health.

2. The teacher's knowledge of hygiene. Even with the most perfect class-rooms and furniture the co-operation of the teachers is required if the health of the children is not to suffer. With the best systems of warming and ventilation, it yet rests with the teacher to see that the class-room is thoroughly flushed with fresh air between lessons. The most ideal forms of seats and desks are useless unless the teacher sees that they are adapted to the individual child ; and when that has been done, the teacher has still to see that the correct attitude, which the seat and desk make possible, is really assumed by the child. Again, the teacher should have sufficient knowledge and sufficient power of observation to note any ill effect which the school work is having upon the children under his charge. He should be thoroughly acquainted with the signs of fatigue. He should be

able to recognise when laziness results from ill-health, and unruliness from want of out-door exercise.

3. School work. That the hours usually allotted to school work (work at school and at home) are much too long, from the hygienic point of view, there can be no reasonable doubt whatever. Even from the point of view of mental attainment the prevalent plan of working children morning, noon and night, often to the verge of exhaustion, and then giving them an eight or ten weeks' holiday to recuperate, is a mistake. The work done at experimental schools both in this country and America seems to show that, with good teaching, children working half the usual school hours make quite as rapid and satisfactory progress as their fellows in the ordinary school. More work of this kind is needed, however, before one can safely dogmatise on the number of hours which should be allotted for the school work of children of different ages. Here it may be sufficient to refer to Dr Clement Duke's (11) Table of Hours of Work for Children, as an improvement on the time-table of many schools, although we regard even his hours of work as rather long, in the case at least of the older pupils.

4. Worry, excitement, fatigue, etc. Certain mental conditions have a very important bearing on the question of health at school, and in these days, when the so-called nervous diathesis is increasing among us, there must be few physicians who do not occasionally see children who have a perfect genius for worrying, and whose health rapidly suffers under the excitement of school work, even to the extent of necessitating removal from school altogether. A minor degree of interference with health from this cause is extremely common in children who, probably, never come under the doctor's notice at all. Suffering of this kind certainly depends very largely upon a predisposition on the part of the child. Nevertheless the responsibility rests with the school authorities of seeing that the conditions at school are not favourable for its development. Among the factors productive of worry in children, perhaps the most important is the personality of the teacher. A fussy, or excitable, or irritable teacher will greatly increase the nervous wear and tear among the children. Few things tire children more effectually than a teacher with a nervous manner. Among other potent causes of worry *in particular instances* may be mentioned rewards and punishments, the system of class marks, examinations, the discipline of the class-room, unnecessary or too prolonged restraint, and certain methods of teaching. The effect of all these upon the children individually requires to be carefully watched. The look of certain classes in a school is sometimes sufficient to tell that something is wrong.

Fatigue (12) in school children has lately been the subject of an enormous amount of investigation, and already it is possible for an up-to-date school so to arrange its time-table as very materially to reduce the amount of fatigue. Among the most important results attained may be mentioned the increasing recognition of the value of physical exercise, and the means by which it can be used not only for the improvement of the bodily health of the children, but as a means of increasing the amount and value of the mental work.

How schools promote health.—Responsible though schools are for a considerable amount of ill-health among their pupils, it is nevertheless true that many children improve in health after going to school. This is due to many causes. Among the poor the children may be in better hygienic surroundings at school than at home. So, also, the regular hours and wholesome discipline which are ensured by attendance at school play an important part in promoting a healthy childhood. Schools again may furnish opportunity and encouragement for games and gymnastics, and the benefits which boys have always received from outdoor exercise are now being gradually extended to girls, and with the best results.

We have already referred to the value of physical exercise in promoting mental development. In a similar way the mental stimulus of the school work, the awakening of fresh interests, the rivalries of the class-room and the play-ground, the contact with a larger social environment than the family affords, all react in a favourable manner upon the bodily health.

Conclusions.—In attempting to reach some conclusions on this subject, it seems convenient to distinguish between the younger children and those who are approaching or who have reached the period of puberty (13). With regard to the younger children nothing need be added to what has been already said in previous paragraphs, for we are dealing specially with the health of *girls*; and although girls are always different from boys, the differences in young children are not so great as to demand essentially different modes of treatment.

As puberty approaches, however, we find ourselves face to face with new and more difficult problems.

Puberty appears earlier in the girl than the boy, and is associated with rapid physical development, so that for a certain time before and after puberty girls are both taller and heavier than boys, although they are so at no other period. A great strain appears to be thrown at this time upon the nervous system, as is indicated by the frequency of a whole series of neuroses. This rapid growth forms the physical basis for the more abundant intellectual and emotional life which develops,

often very rapidly, at this period. There is a marked increase in self-consciousness, and the differences between the sexes become strongly pronounced. If we try to express these differences as shortly as possible, we may find suggestion as well as convenience in adopting the conclusion of Geddes and Thomson (14) in their work on "The Evolution of Sex," that the female is characteristically anabolic while the male is as characteristically katabolic.

Now this predominant katabolic characteristic of the male has found pedagogic expression in the accepted doctrine that the best training for boys during adolescence is that which furnishes the most abundant channels for the healthy expenditure of energy. The games which boys everywhere instinctively love at this period are those which test their strength and endurance, and demand their utmost energy. Their ambitions also and their ideals are of a strenuous, active type.

With the girl, matters are very different. The rapid development which takes place at puberty is a great drain upon her energy. The great acceleration in the rate of increase in muscular strength and endurance which takes place in boys after puberty scarcely occurs in girls at all. This, at any-rate, appears to be the only interpretation which can be given to the results of recent ergographic work, such as that which Christopher (15) has been doing in the Chicago schools. Expenditure of energy and fatigue which mean so little to the boy are serious matters to the girl; and in producing nervous exhaustion, continuous and severe mental effort, the excitement of competition, and in short all those influences which we have already referred to as productive of worry, have an effect upon girls quite out of proportion to that which they have upon boys.

These considerations are, no doubt, theoretical; but it is significant that many practical teachers, guided solely by their experience in school, are asking whether during the period of rapid development at puberty the mental work expected of girls ought not, for a time at least, to be diminished instead of increased. Stanley Hall doubtless goes too far in suggesting —of course he is thinking of the needs of American and not of English girls—that "idleness should be cultivated and reverie should be provided for in every way," and we are unable to agree with those teachers who seek to eliminate competition and emulation from the class-room entirely; but we believe there is physiological justification for a difference in the treatment of girls and of boys upon the lines indicated.

In the case of girls the general line of treatment must be such as to avoid undue dissipation of energy; to avoid all the

known causes of that curious form of fatigue which has attained notoriety under the name of over-pressure. It is especially during the early adolescent period, during the establishment of menstruation, that the danger is greatest. For many girls, rest during or at least at the beginning of each period, until the habit is thoroughly established, is a necessity if health is not to suffer. As Dr Reynolds (1) says: "The world has known for a great many generations that it could get more work out of itself in six days than in seven. The world has come to know that employees must be given two weeks' vacation out of the year; and we have grown to know, of recent years, that the brain worker can do very much more work in eleven than in twelve months out of the year. I believe, when we are a little bit more civilised, we shall know that, as a pure matter of economics, we can drive more work out of women in twenty-five days than we can in twenty-eight." If this is so, it rests with the school so to arrange its time-table as to make this relaxation of work possible without embarrassment to the pupils.

In conclusion, we may mention a few general points which require consideration in the case of girls. These are—

(*a*) Nutrition. Many a timely hint that all is not going well would be gained if a periodical, but not too frequent, weighing and measurement of the children, such as we referred to at the beginning of this article, could be carried into effect.

For example, if this were done, the discovery of such a loss of weight as Ignatieff found to occur in many children during the examination period could not fail to excite enquiry.

(*b*) Physical exercise. Of the importance and value of physical exercise we have already spoken more than once. It remains only to urge again the danger of over-exertion, strain, and fatigue at the time of puberty. For physical exercise, girls should be classed on a physical and not an intellectual basis. Even such an apparently trifling matter as the steepness of the school stairs, and the number of times the girls have to climb them in passing from class to class, deserves more attention than it often receives.

(*c*) Suitable clothing, both for ordinary wear and for exercise.

(*d*) Abundance of interesting occupation, and a healthy mental environment, with plenty of rest between the periods of activity.

(*e*) Early hours and sufficient sleep. Social and other outside demands are often the disturbing factor here rather than the school.

(*f*) The school medical officer. Boarding-schools, being fully *in loco parentis*, necessarily have a medical officer to attend

to cases of illness arising among the pupils. Day-schools, on the other hand, usually, and wisely, leave the parents to procure medical advice for children in need of it. Wisely, we say, because schools exist for educational purposes, and it is no part of their function to act as hospitals or dispensaries also. Nevertheless schools incur a good deal of responsibility with regard to the health of their pupils, and it is with satisfaction that we observe that School Boards in England are tending more and more to appoint medical officers to act with and to advise the Board as to conditions affecting health in the schools.

The duties of such medical officers are rather multifarious. They usually include the examination of all plans for new schools; the periodical inspection of all the schools of the board as to ventilation, warming, lighting, accommodation, and so on; the instruction of teachers in school-hygiene; the examination of the sight and the hearing of children; the examination of stupid, imbecile, and otherwise exceptional children, and advice as to their care; advice as to schemes for physical exercise and drill, and the examination of certain children as to their fitness for such drill; advice as to the closing of schools during epidemics. Various other duties are imposed by certain School Boards. In New York a special medical officer is appointed for each public school, whose duty it is to visit the school at the hour of opening in the morning, and to examine all children who are noticed by the teachers to appear ill, or who have any rash or sore throat, in order that if there is any suspicion of infectious disease the child may at once be isolated and the parents or local authority communicated with. We might have mentioned, also, among the duties of the school medical officer, the preparation of rules for the prevention of infectious diseases in schools, but that the code of rules for this purpose drawn up by the "Medical Officers of Schools Association" (16) is of general application, and is of greater authority than any set of rules drawn up by an individual practitioner could be.

With regard to the appointing of school medical officers, various plans have been adopted. Small School Boards and private schools in many cases retain the part-time services of a local medical practitioner, or casually employ various specialists according to the nature of the advice required. The larger School Boards may adopt the same methods; or they may appoint separate medical officers for their various schools; or, again, they may engage a suitably qualified man to give his whole time to the duties of his post. The latter plan has recently been adopted by the London School Board, and, where a Board can afford it, such an appointment obviously

has, at least, two great advantages over the other methods mentioned. Firstly, it is only by such a method that a single medical officer can become really a specialist in the very various duties he has to perform; and, secondly, such an officer, if a competent man, ought to be able to make important contributions to the rapidly evolving science of school hygiene.

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Meetings of Societies

The Edinburgh Medico-Chirurgical Society

THE eleventh meeting of the session was held on Wednesday, June 4—Prof. T. R. Fraser, the President, in the chair.

Dr George Gibson showed a well-marked case of locomotor ataxia with unusual symptoms in a man aged thirty-one. The chief interest lay in the fact that there was an isolated paralysis of the internal rectus of left eye; there was no Argyll-Robertson phenomenon. He had curious psychological symptoms which

came on as various types of delirium. Dr Gibson showed a second case of locomotor ataxia in a man aged forty-five. There was absolute atrophy of the left optic nerve and almost absolute atrophy of the right.

Mr Caird showed a case of double enterectomy for tuberculous stricture at one sitting in a male patient. For six years the symptoms were entirely gastric, pain after meals and vomiting. Latterly there had been colic and diarrhœa, the pain being present day and night. Tuberculous stricture of the small intestine was diagnosed and two strictures were found.

Dr Wm. Elder showed a case exhibiting choreiform movements, and which had done so for the last five years. During convalescence from an attack of scarlet fever five years ago patient had developed movements of the face and mouth, and a year later of the legs and arms. Eighteen months after the illness a peculiar grunting commenced and has continued since. Dr Elder was inclined to consider it a case of paramyoclonus multiplex, and not one of chronic chorea of Sydenham.

Mr Alexis Thomson showed a patient after laparotomy for purulent peritonitis of gonorrhœal origin, and second laparotomy for acute intestinal obstruction due to multiple bands, ten weeks later.

Card Specimens.

By Dr F. M. Graham—

Base of a skull in which there is absence of the right lateral sinus, etc.

By Mr Caird—

Intestine in which there is a double tuberculous stricture.

By Dr Harvey Littlejohn—

1. Specimens illustrating compression of the brain from hæmorrhage.
2. Specimens illustrating the effect produced upon the hands and feet by prolonged immersion in water.
3. (*a*) Uterus showing appearance in menstruation.
   (*b*) Uterus from case of abortion at fifth month resulting from external violence.
4. Photographs of a case of drowning.

Papers were read

by Dr Alex. Bruce on

"Hæmorrhage into the spinal cord during pregnancy";

and by Mr John Shaw M'Laren on

"Intraperitoneal rupture of the bladder. Notes of two cases, one of which recovered after suture."

These will appear in a future number of the Journal.

Edinburgh Obstetrical Society

THE seventh ordinary meeting of this Society was held on the 11th June—the President, Dr James Ritchie, in the chair.

As usual there was a large display of pathological specimens. Professor A. R. Simpson showed: two fibroid uteri removed on account of pressure symptoms; part of a sloughing fibroid removed by the écrazeur; three examples of extra-uterine pregnancy, one being a six months' pregnancy; a cystic ovary removed from a patient who had the opposite ovary removed two years previously for similar disease; an ovarian tumour, with twisted pedicle, which had caused immense hæmorrhage into the abdomen.

Dr Berry Hart demonstrated: (1) A dermoid tumour of the ovary, the size of a cocoanut, removed from a patient on 13th May. On March 8th the patient was sent into the Maternity Hospital as there was an obstruction to delivery from the presence of the tumour in the pouch of Douglas. The os uteri was fully dilated, and no attempts at delivery had been made. When the patient was placed in the genu-pectoral position, the tumour readily slipped up, and the child was delivered alive with forceps. The tumour was removed ten weeks later. (2) Hæmatosalpinx due to tubal gestation. The patient had no symptoms pointing to this condition, and the swelling was discovered accidentally. It was on the point of rupturing, and in fact did rupture while being removed. (3) The left half, or the edge of the dilated os uteri, a piece of tissue 3½ by 1½ inches torn away spontaneously in a case of rigid cervix. Patient was a v-para. The first stage was very tedious, but the os dilated suddenly and the head came down, so that forceps were applied. After the birth of the child a large piece of tissue was found protruding at the vaginal orifice, and this was found to be continuous with the anterior lip of the cervix. It was an unusual case of spontaneous laceration.

Dr Haig Ferguson exhibited: (1) one of the rarest of vaginal neoplasms, a fibroma removed from the anterior vaginal wall; (2) a structure like a large blood-vessel, found in the broad ligament during an ovariotomy, and probably a dilated Gartner's duct; (3) a small fibroma, causing great pelvic pain, removed from the broad ligament of a patient on whom double oöphorectomy had been performed five years previously.

Dr Fordyce showed a vascular œdematous fibroid removed by supra-vaginal hysterectomy.

Dr D. A. Callender read Notes on a case of Epithelioma of the Vulva: operation: recurrence. The case was that of

a lady, aged 63, who had suffered from intense itching and irritation in the neighbourhood of the vulvar orifice for several years. There was scalding pain on micturition, and great discomfort on walking and on sitting down. On physical examination hypertrophy and induration of the right labium majus was present, with superficial ulceration on the vaginal aspect, and secretion of a large amount of yellowish-white discharge. Right inguinal glands enlarged. General health not markedly impaired. No evidence of disease of pelvic organs. There was a history of malignant disease in other members of the family. The right labium majus, along with the corresponding inguinal glands, was removed, followed by great improvement. Examination of the tumour proved it to be of an epitheliomatous nature. Microscopically typical cell nests were seen, with considerable small cell infiltration. In six weeks there was a recurrence in the wound in the groin, and an indurated mass could be felt in the vicinity adherent to femoral artery and vein. There was also slight œdema of the right leg. A small epitheliomatous ulcer was also noticed on the left labium majus, with enlargement of the left inguinal glands. This caused very painful micturition, and was removed, with the result that she could pass water without any pain or discomfort. The disease rapidly advanced in the right groin, associated with great pain in the hip and knee joints, and discharge of a large quantity of thin serous fluid daily, at times blood-stained. Marked cachexia is now present, and she has lost considerably in weight. The patient had improved recently under the local action of X-rays.

Professor J. A. C. Kynoch read a paper entitled "Repeated Ovariotomy." He noted that repeated ovariotomy in the same patient was somewhat rare. Of 228 cases of unilateral ovariotomy performed by Spencer Wells, recurrence in the presumably healthy ovary necessitating a second operation occurred in 6 cases; of 300 cases collected by Pfannensteil in the Breslau Klinik, 6 required a second ovariotomy. Vellitz had collected 135 cases of repeated laparotomies for various causes, and in 56 of these the indication was cystic disease of the ovary, which was apparently healthy at the first operation. The interval between the two operations varied from six months to twenty-five years, according to Olshausen, but most were reported to have taken place within two years. One must exclude from this consideration cases where the second tumour has its origin in ovarian tissue left in the pedicle, or from part of the cyst being left. The mortality from the second operation is slightly greater than the first, probably because of greater frequency of adhesions. Repeated ovariotomy raises the question as to the

treatment of the apparently healthy ovary in cases of unilateral cystic disease. It is in the case of papillary cysts that the removal, partial or complete, of the other ovary is of most importance, because it is almost impossible during the operation to tell with any certainty whether we are dealing with a simple or malignant papillomatous tumour. It is imperative that the patient be told that the other ovary may have to be removed. In women about the climacteric period it would be probably a safe rule to remove the unaffected ovary in every case. In younger patients, however, a more conservative treatment was advocated. According to the statistics of Spencer Wells, only in 2·6 per cent. of unilateral ovariotomies is the repeated operation necessary. Of 228 ovariotomies performed by him, 120 of the patients subsequently bore children, and only in 6 cases was a second operation required. In the case of papillomatous tumours, the recurrent growth spreads so rapidly that operation is frequently useless. Simple puncture with the knife or cautery may be sufficient to cure simple incipient cystic disease of the second ovary, and the conservative treatment of the diseased ovary was advised. Mere resection of a papillary cyst is not so safe.

Professor Kynoch then related three cases in which he had performed a second laparotomy, each within a period of two and a half years. The first was an example of recurrence of a simple multilocular ovarian cyst; the second was a case of recurrent papillary ovarian cyst; while the third was a case of malignant ovarian tumour occurring subsequent to the removal of an apparently simple multilocular ovarian cyst.

In the discussion which followed, Dr Haultain narrated his own experience in 145 ovariotomies, of which 13 were double, *i.e.* a tumour in each ovary. When he found a papillomatous tumour present in one ovary, he invariably removed the other ovary on account of its great tendency to become affected.

Drs Berry Hart, Lackie, Haig Ferguson, Ballantyne, and the President also joined in the discussion.

Dr Michael Dewar read a paper on "The use and abuse of forceps in general practice." He stated that it was frequently said that forceps were very often unnecessarily and unskilfully used and thus cases of perineal rupture, split cervices, recto- and vesico-vaginal fistulæ and other injuries were produced. It seemed to the author that it might be of advantage to state the general practitioner's point of view—the standpoint of those who are mostly engaged with a respectable working class practice. He asked if the large majority of those cases of injury could properly be attributed to the forceps themselves and not rather to the unskilful use of the instruments. After glancing at the inadequate training which the student has in the applica-

tion of forceps, he stated that even occasionally a split cervix or ruptured perineum happened in the skilful use of forceps. All however whom he had questioned agreed that a great many more cases occurred in unaided than in aided cases.

Dr Sinclair made a vigorous onslaught against the too-frequent use of forceps in a paper published five years ago and condemned out and out this unnecessary use. He held that from 3 to 5 per cent. of forceps cases was quite high enough. More recently this statement has been corroborated by obstetricians in various parts of the country. Others again admit that 12 to 15 per cent. would be a fair average. In estimating at the present time what should be a correct average of forceps cases one must take into consideration certain conditions: (1) As to whether the locale be city or country. In the former a large majority of the patients are anæmic, poorly developed physically, or with a slightly diminished conjugate. (2) The city woman is less patient and in eight out of ten cases calls on the doctor to help her. (3) In rural districts a different type of woman is met with and here the percentage of forceps cases is very much smaller than in the city. The women are of a more robust physique and are better developed physically and endure all kinds of pain more heroically. Country women have often a perfect horror of the "irons" as the forceps are called. In one thousand cases which occurred in Dr Dewar's country practice, there were seven women with markedly contracted conjugate. Of these, one was delivered three times by version, two twice by version, and four once by version and instruments. He felt strongly that had he then possessed the improved instruments of to-day and the greater skill in their use which experience had given, a great deal of unnecessary suffering on the part of the patients would have been saved without increasing the mortality or morbidity. (4) Another factor which determines the more frequent use of forceps in city practice, was diminished "vis a tergo" or inertia. This was a condition which, if unduly prolonged, to his mind demanded instrumental help. Some deprecate the use of forceps in such cases mainly on the ground of the risk of post-partum hæmorrhage. The author's experience in dealing with these is of the very opposite nature. He has never met with such hæmorrhage when he applied forceps in inertia cases: in unaided cases however the accident had occurred.

In hospital practice the percentage of forceps cases is exceedingly small. Thirty years ago the percentage of such in Edinburgh Maternity Hospital was ·21, while the maternal death rate was ·8. In the Dresden Hospital from 1883-8 the percentage was 2·8. At the present time several obstetricians

maintain that forceps cases should never exceed 5 per cent. while others allow as high as 20 per cent. Dr Dewar affirmed that it was impossible to carry on a general working class practice with anything near the percentage of 5. He has obtained statistics from various men in town and country, and not one of these came anywhere near 5 per cent.

In 700 of Dr Dewar's cases in the country from 1877-81 forceps were used 77 times = 11 per cent. Version was employed 8 times. Of primiparæ the percentage was 20, and of secondiparæ 22·6. Other medical men in the country have the following percentages: 10, 12·5, 13, 30; and these may be taken as a fair average of careful midwifery in the country.

Of 300 cases in the town from 1896-1901 forceps were used 105 times = 35 per cent. Version was employed in 3 cases. Other medical men in the town have these percentages: 10, 35, 38, 39, 40, 45.

As to mortality in the country, Dr R., with 13 per cent. of forceps cases, had, out of 249 cases with 32 forceps, 2 deaths = 6 per cent. of forceps cases, or ·8 of the whole. Dr Y., with 10 per cent. forceps cases, had, out of 454 cases, 45 forceps and no deaths after their use.

In Dr Dewar's first series of 700 country cases there were no deaths after forceps. There were 20 deaths of children = 2·8 per cent. of the whole.

In the city, Dr M., with 10 per cent. of forceps cases, had 2 per cent. maternal mortality. Dr S., with 35 per cent. in 350 cases, had no maternal mortality and ·05 per cent. infantile mortality. Dr P., with 39 per cent. in 548 cases, had no maternal mortality, and Dr B., with 40 per cent. in 300 cases, with no maternal mortality. In his own series of 300 city cases there was 1 death due to heart failure, and 5 deaths of children = 1·6 per cent.

In conclusion, the figures given show that the record of 300 cases, with forceps percentage of 35, a ·3 maternal mortality and a 1·6 infantile mortality is a much better one than that of the 700 cases with forceps percentage of 11, a ·57 maternal mortality and a 2·8 infantile mortality. It compared very favourably with hospital statistics of the present day where every sanitary precaution is taken.

The lesson to be learned is that there is much greater safety to both mother and child by a liberal, judicious and careful use of the forceps than when the labour is allowed to linger on until the woman is quite exhausted and her vital powers of resistance lowered.

Drs Keppie Paterson, Haultain, Haig Ferguson, Berry Hart, and Ballantyne took part in the discussion which followed.

Glasgow Obstetrical and Gynæcological Society

THE tenth (and last) ordinary meeting of the Society was held on May 28—Dr Robert Jardine, President, in the chair. There was a large attendance.

Dr Kennedy Dalziel gave an account of three cases illustrating the effect of disease of the ovary upon the colon. The first was that of a lady of neurotic type, who suffered from colitis of the kind so often met with in these patients. She had severe rectal pain, tenesmus, diarrhœa (chiefly mucus) and general prostration. She was often unfit for work. Medicines, rest, lavage of the bowel had little effect. There was a suspicion that one ovary was not healthy. Locally, the rectum felt normal. At last the abdomen was opened, the colon found to be normal, and the only thing done was the removal of one unhealthy ovary. In ten days all rectal symptoms disappeared, and now, save for slight pains, the patient is well. This case, Dr Dalziel remarked, was not striking, yet was encouraging. The second case was that of a nurse who had suffered greatly from colitis for two years. The appendix had been removed by another surgeon with no improvement. There were ten to twelve motions a day, with mucus and blood; a subnormal temperature, and a rapid irregular pulse. Laparotomy was performed, the colon found normal, while both ovaries were observed to be unhealthy. Dr Dalziel removed them both, and in two days the pulse had improved, the diarrhœa ceased, and the general condition improved. She is now in good health and takes a full dietary. The third case was one of marked constipation and apathy, and a mental condition bordering on idiocy. The uterus was retroflected and the left ovary enlarged. Laparotomy was done, the bowels found normal, and the ovaries removed. In a few weeks the bowels commenced to act, and have continued to do so since with the aid of simple aperients.

Dr Stark and Dr Sloan spoke, and Dr Dalziel replied.

Dr Alex. M'Lennan gave a communication on examination of the endometrium by the finger, with notes of two cases. (1) A nulli-para, about 35 years of age, complained of menorrhagia, dysmenorrhœa and general pelvic symptoms. The uterus was retroverted and prolapsed, and measured $3\frac{1}{4}$ inches. The cervix was rapidly dilated, the finger introduced, and the bimanual examination then revealed a myoma of the anterior wall in the right corner of the uterus. (2) A ii-para suffered from profuse hæmorrhage. The uterus was large ($3\frac{1}{2}$ inches), and the os patulous. The annexa were normal. Intra-uterine palpation revealed a smooth endometrium, which proved on

curettage to be softened and inflamed. The uterus was packed and the bleeding ceased.

Dr M'Lennan said that indications for this procedure were — menorrhagia, metrorrhagia, post-climacteric bleeding, dysmenorrhœa, and before and after curetting. Contra-indications were—tubal disease, ectopic gestation, and acute inflammatory conditions. In conclusion, he described Schultze's method of dilatation and the course he himself pursued.

Drs Marshall, Monro Kerr, Russell and Sloan discussed the paper, and Dr M'Lennan replied.

Dr A. W. Russell showed: (*a*) Three intestinal concretions passed by an elderly woman who had suffered for a long time from symptoms simulating malignant disease of the colon—pain, emaciation, constipation, and a hard mass to be felt. Eventually she passed three large enteroliths of vegetable undigested material, and got quite well. (*b*) A large enterolith removed from the small intestine of a woman who had previously had an abdominal section for ovarian disease, on which occasion a lint guard was accidentally left in the abdomen. It found its way into the small bowel, and gave rise to symptoms there which led to exploration and its successful removal.

At the close of the meeting, Dr Howard Kelly, of Baltimore, was elected Honorary President for a period of two years; and Dr Nigel Stark, President, for a similar term, in the place of Dr Jardine, whose tenure of that office now ceases.

The Glasgow Southern Medical Society

THE eighteenth meeting (May 15) took the form of a visit to the West of Scotland Consumptive Sanatoria at Bridge of Weir. About forty members availed themselves of this opportunity, and were kindly received by Mr Quarrier, and shown over all the establishment by Dr Hyslop Thomson.

THE nineteenth (and last) ordinary meeting for the session 1901-02 was held on May 29—Dr Stuart, the President, in the chair.

Dr Arch. Young contributed an interesting paper on his experiences during a year's service as a civilian surgeon in South Africa. His term of office began in February 1900, and most of his time was spent at Kroonstadt attached to No. 3 General Hospital, where he had charge of several sections. The speaker devoted most of his time to a description of the surgical work (of which he was fortunate enough to get plenty) and the impressions he had received in connection therewith.

Of general surgery he had a good deal—fractures, piles, stricture, prostatic affections, osteomyelitis, hernia, tumours, and so forth, while a large variety of gunshot wounds fell to his share. The majority of the latter were caused by Lee-Metford and Mauser bullets, but all kinds of others were met with, such as Martini-Henry, revolver, buckshot, shrapnel, shell, etc. The paper was illustrated by a very large number of lantern slides, and, at the close, Dr Young, on the motion of the President, was awarded a hearty vote of thanks.

Editorial Notes and News

The King.

THE oppressive feeling of calamity which descended on the whole nation when it was announced that the Coronation was postponed on account of the serious illness of the King, will not readily be forgotten, nor will the feeling of thankful relief on the issue of the detailed report.

The extremely guarded character of the early bulletins somehow aroused suspicion that matters were more serious than was actually stated, and though the wild rumours of malignant growth and resection of the bowel were probably not believed in by many members of the profession, there is no doubt that an uncomfortable feeling was abroad, and was only allayed by the publication of the definite information in the report.

If the abdomen was opened to ascertain the condition of the appendix we can well understand the guarded nature of the bulletins until sufficient time had elapsed to nullify the apprehension of general peritoneal infection. Now that a few days have elapsed, the risk of that is practically over, and there is every reason to hope that His Majesty will make a rapid and complete recovery. He has ever shown his deep sympathy with the sick, and now that he himself is laid down, the sympathy will be returned a hundred fold.

The Coronation Honours.

THE Medical Profession cannot complain of want of recognition in the list. Of the sixty-four new knights, eleven are members of our profession.

The inclusion of Lord Lister in the new Order of Merit is an honour alike to the Medical Profession, to Lord Lister, and to the Order, for not one of its other distinguished members has done more for humanity than the veteran surgeon and scientist.

Sir William Church, Sir Frederick Treves and Sir Francis

Laking have had further honours bestowed on them, and the official heads of the various Royal Colleges have been duly recognised. The apparent omission of the Royal College of Physicians of Ireland is explained by the fact that Sir Christopher Nixon is already a Knight.

We offer our special congratulations to Sir Thomas Fraser, Sir John Halliday Croom and Sir William Macewen, whose professional eminence apart from their official positions thoroughly entitled them to the honour.

Everyone in Scotland will cordially approve of the bestowal of the C.B. on Dr George T. Beatson, of Glasgow, as some recognition of his work in connection with the organisation of the Scottish National Hospital.

The Murder of Col. Macadam.

THE tragic fate of Mr Ivison Macadam, who was shot by a laboratory servant on the morning of the 24th, would have created a still more painful impression had it not been followed almost immediately by the announcement of the serious illness of the King.

An active and popular teacher, he was still more widely known for the interest he took in affairs generally. An enthusiastic volunteer, an ardent Mason, he had much work in these connection; but he was one of those men to whom one naturally turned when there was secretarial or organising work to do. He was for years Secretary of the Board of Studies of the Medical College for Women for which he did an immense amount of work, and rendered the work of the other members of the Board very light.

He was shot through the heart, and it is a pathetic circumstance that he died dressed in the uniform of his regiment, for he was to have left for London that afternoon in charge of volunteers, in connection with the Coronation procession.

Examiners in the R.A.M.C. and the I.M.S.

IF Scotland had reason to be dissatisfied with the constitution of the Advisory Board, she certainly can extract some consolation from the composition of the Examining Boards recently announced.

Of the six examiners on the Indian Board four (Professors Dan. Cunningham, Dublin; Leith, Birmingham; Stockman, Glasgow; and Dr Milne Murray) are graduates of Edinburgh; the other two examiners are Professor Clifford Allbutt and Mr Howard Marsh.

The R.A.M.C. Board has evidently been chosen very carefully. The entrance examination will in future be in medicine

and surgery only, and the eight examiners are apportioned—four to England and two each to Scotland and Ireland, a proportion which we understand is to be maintained. The Board is as follows :—

MEDICINE.	SURGERY.
Dr Kingston Fowler, London.	Sir Wm. Thomson, C.B., Dublin.
„ Markham Skerritt, Bristol.	Mr John Chiene, C.B., Edin.
„ G. S. Middleton, Glasgow.	„ Herbert Page, London.
„ James Craig, Dublin.	„ Jonath. Hutchinson, jun., London.

We hear that the number of candidates promises to be larger than it has been for years, so that the younger graduates are evidently convinced that the War Office is really in earnest in its desire to improve the conditions of the service.

It has just been intimated by the War Office that the next session of the Army Medical School will be held in London.

The John Usher Institute of Public Health.

THE University of Edinburgh is to be congratulated on having received so generous a gift as the Institute of Preventive Medicine. The deed of gift was handed to the Vice-Chancellor by Sir John Usher on the 11th June in presence of a large and appreciative audience in which University professors and medical men preponderated.

Sir John Usher narrated how he had come to the help of the endowment of the Chair of Public Health in the University of Edinburgh, and how having been asked to furnish an Institute he had acquiesced and the present edifice had resulted. Sir John further stated that while the building was in course of erection it had been brought to his notice that the city of Edinburgh would require a laboratory in connection with its public health work, and he had accordingly instructed the architect to make provision for such need.

The venerable Vice-Chancellor, Sir William Muir, having, on behalf of the University, accepted the gift, Sir William Turner with characteristic lucidity gave an excellent resumé of the development of sanitary science during the Victorian reign, and traced the establishment of degrees in Public Health in the University of Edinburgh. He concluded by moving a hearty vote of thanks to the donor. This was seconded by Professor Hunter Stewart, who indicated how such an Institute would benefit those going forward to the medical and sanitary professions. Mr J. Ian M'Pherson, M.A., on behalf of the students, in a graceful speech presented an illuminated address to Sir John Usher and the proceedings then terminated.

As yet the building is practically unfurnished, so it is im-

possible to speak of it critically. The architect has, however, done his part well in producing a structure eminently adapted to the purposes for which it is intended. The town's official reporting work is as we indicated last month no longer undertaken by the Royal College of Physicians at their laboratory, and we did not see any evidence of its being carried on in the institute. Doubtless it is being well done elsewhere.

We earnestly trust that as much excellent work is being done in other Public Health Institutes throughout the country and on the Continent, so here also in the Sir John Usher Institute every encouragement and help will be afforded to students and practitioners to advance the knowledge of preventive medicine.

Dr P. Murison has been appointed Medical Officer of Health for Durban. Dr Murison has had an almost unique experience in sanitary matters, for in addition to being at present Medical Officer of Health for the county of Sutherland, he was formerly a Magistrate and Convener of the Public Health Committee of the Town Council of Dundee.

As Dr Murison was one of those Medical Officers of Health who was allowed consulting practice, the question will be raised anew, and will, we hope, be settled in the way which the Local Government Board has so clearly pointed out to the neighbouring county of Caithness.

Dr C. C. Easterbrook, Senior Assistant at Morningside, has been appointed Superintendent of the Ayr District Asylum.

Mr Shaw M'Laren has resigned his post as Assistant Surgeon to the Royal Infirmary, Edinburgh, and leaves in October to take up medical missionary work in India.

It is, we fancy, almost unique for an assistant surgeon, high on the list (he would have got full charge of wards at the next step), to resign so coveted a position, and it is altogether exceptional for a medical missionary to enter on his work so exceptionally qualified.

Mr M'Laren has been one of the most dependable of our staff, and we hope to receive many interesting contributions from him in his new sphere of work.

Chair of Surgery, Anderson's College, Glasgow.

THE Governors of the College have appointed Dr Jas. H. Nicol to the Chair of Surgery in Anderson's College Medical School left vacant by the retiral of Dr Kennedy Dalziel. Dr Nicol has already proved himself a successful teacher.

Chair of Physiology, St Mungo's College, Glasgow.

THE Notman Chair of Physiology in St Mungo's College, which has been held for several years by Dr John Barlow, is now vacant owing to his retiral, and the Governors will shortly proceed to elect his successor.

Degrees in Public Health for Glasgow University.

THE determination to establish Science Degrees in Public Health in Glasgow University similar to those which have been conferred by Edinburgh for a number of years, is a very proper one, and only fitting in a city where Public Health and Sanitation have received such thorough attention. When the new Public Health Laboratories now contemplated at Gilmorehill are ready there will be every facility provided for the full curriculum. It may be remembered that some ten years ago a diploma in Public Health was instituted; owing to certain reflections on the thoroughness of the examinations it was withdrawn after a short life of one year. The new Science Degrees will fittingly take its place.

The Royal Colleges' Golf Match.

SINCE its institution the match has been played on the first Wednesday after the Winter Session, and the cold blizzards in which some of the matches were played are to many the most enduring recollections of the outing. This year a Friday afternoon in June was selected, and though the weather was more reminiscent of March than suggestive of summer, it was not quite so cold as the teams have been accustomed to.

This year, too, the further change was made that the match was open to all comers, instead of being restricted to teams, and the effect of this was the largest turn out in the history of the Club, 21 playing for each College. The change, however, made no difference in the result, and as usual the Surgeons won the cup. The following are the scores:—

R. C. S.		R. C. P.	
Argyll Robertson	2	F. W. N. Haultain	0
R. H. Blaikie	0	A. D. R. Thomson	2
George Chiene	8	T. R. Ronaldson	0
J. M. Cotterill	1	Francis Boyd	0
J. W. Struthers	7	R. Thin	0
John Chiene	1	C. J. Lewis	0
David Wallace	4	R. Muir	0
George Mackay, sen.	6	H. Melville Dunlop	0
D. Waterston	6	John Fraser	0
J. W. B. Hodsdon	0	A. Ballantyne	3

R. C. S.		R. C. P.	
Harvey Littlejohn . .	7	Norman Walker . .	0
Shaw M'Laren . . .	1	Nöel Paton . . .	0
A. H. Sinclair . . .	1	G. Lovell Gulland . .	0
F. M. Caddell . . .	0	T. J. Thyne . . .	10
H. J. Stiles . . .	0	R. C. Maclagan . .	1
R. Kirk	0	G. A. Gibson . . .	3
Alexis Thomson . .	6	J. B. Buist . . .	0
P. H. M'Laren . . .	1	J. G. Cattenach . .	0
George Mackay, jun. .	1	W. Fordyce . . .	0
J. B. Ronaldson . .	0	R. Lucas	2
T. Shennan . . .	0	W. Elder	3
	52		24

After the match the teams dined together at Gullane, Dr P. H. M'Laren, the Captain of the Club, in the chair.

The Residents' Club. THE Annual Dinner of the Residents' Club unfortunately clashed with the Royal Colleges' Golf Match, and when the dinner commenced under the chairmanship of Sir Dyce Duckworth the numbers were not so great as they would otherwise have been. Between 60 and 70 old residents turned up, and between 10 and 11 o'clock they were reinforced by the entry, in tweeds and khaki, of those who had been playing in the match at Gullane.

The Treasurer's report showed that financially the Club was in a very satisfactory position, and it is hoped that next year the Clinical Prize will again be offered.

The toast of the Residency was proposed by the President and Sir Dyce Duckworth's health was proposed by Dr James Carmichael, who was a fellow resident with him.

Free Alcohol. THE additional clause to the Finance Bill moved by Mr Haldane, authorising the use of alcohol free of duty in the manufactures and arts, is one of considerable interest to the medical profession. In investigation work, as well as in manufactures, we have been hampered, as compared with Germany, by the excessive charge for absolute alcohol; this is particularly the case in certain branches of pathological chemistry, where large amounts of alcohol have to be used for washing precipitates, and the reduction in price, which is apparently as good as effected, will be greatly appreciated by many investigators.

Recent Literature

CRITICAL SUMMARIES AND ABSTRACTS

MEDICINE

ON THE DISEASES OF THE LUNG SUITABLE FOR SURGICAL TREATMENT

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IN a series of papers in *Mitth. üb. d. Grenzgeb. d. Mediz. u. Chirurgie*, Vol. 9, Pt. 3, 1902, by Quincke, Garrè, and Lenhartz, the surgery of the lungs is discussed from different points of view, and I shall endeavour to reproduce the more important data from them as far as they refer to pathology, diagnosis, and the general line of surgical treatment, leaving the special details untouched. Quincke was among the first to recognise the possibilities of lung surgery, and is one of the first authorities on the subject, and I shall quote mainly from his work.

Tumours, which afford the surgeon so many opportunities in other viscera, are here almost always inoperable; primary tumours of the lung are exceedingly rare, and secondary growths are always multiple. Almost all the conditions where surgical interference with the lung is justified are suppurative, or associated with suppuration. Hydatids form the only considerable exception. The first duty of the surgeon is to remove pus, or to provide drainage for it; and many abscesses of the lung heal when this has been done, or when in addition necrotic parts have been allowed to escape. This amount of interference is insufficient, however, when the surrounding lung tissue is diseased, as in the case of tuberculosis or actinomycosis; and here further surgical or medical treatment becomes necessary. A tubercular abscess in other parts of the body does not heal after simple opening.

Simple suppurative disease of the bronchial mucous membrane does not demand interference, for it is usually generalised, and, moreover, there is a free drain through the larynx, so long as mobility and elasticity of the lung and thoracic wall, and the power of the expiratory muscles are unimpaired.

In cases, however, where emphysema is present, or where there is fibrous induration of the lung, pleural adhesion, rigidity,

or deformity of the thorax, there is more or less hindrance to the expiration of pus from the whole or part of the lung. Here, under the pressure of collections of pus, helped, of course, by other conditions, dilatations of the bronchi may form, either the multiple cylindrical variety, or the larger saccular cavities which are usually seated in the lower lobe.

Parenchymatous abscesses of the lung are rarer, and have for their type the abscesses due to foreign bodies which have been aspirated into a previously healthy lung. Many of these are due to such large bodies as teeth or shirt-studs, but others are undoubtedly due to microscopic particles of food or other substances which during vomiting, hasty eating, in snoring during sleep, or other such movements, have been inspired into the smaller bronchi. These bodies all act mainly as carriers of organisms, and when the primary focus is small, it may be days or weeks before it gives rise to signs or symptoms. In many cases these abscesses are putrid, which is a proof, if that were needed, of their dependence on swallowing.

Pus-producing organisms may also reach the lung by way of the blood. Since surgery became aseptic they have become much rarer, and can, in any case, only exceptionally require surgical interference, as they are always multiple, and either the general septic condition or a purulent pleurisy rapidly kills the patient, as a rule.

For many reasons, lung abscesses have been only recently attacked by surgeons. The abscesses are very often multiple, and are often associated with diffuse disease of the bronchi and lung parenchyma. It is exceptional to have a single abscess, and it is by no means easy to decide whether this is the case or not. The abscesses early in their course open into the bronchi, and many heal spontaneously after drainage in this natural way. In other cases the patient becomes so accustomed to the expectoration of pus that he ceases to regard it as of importance, and many cases only come under observation when they are far advanced. The actual technique of operation is difficult, because of the anatomical peculiarities of the organ.

The object of operation is to evacuate pus, and to secure disappearance of the cavity by cicatrisation. In other organs this is comparatively easy, because the parts which have been displaced tend to come together again, and are actually drawn in by the pull of the cicatrix. In the lung not only is the natural elasticity greater than in other organs, but it is reinforced by the centrifugal force, due to the tension of the organ in the thoracic box. When the abscess is small, and arises in a normal lung, the defect can be made good by the neighbouring lung tissue, and when it occurs in the lower lobe the mobility of the diaphragm

and abdominal contents, and of the lower ribs assist cicatrisation. But in the upper lobe circumstances are not so favourable. Cicatrisation may occur without apparent alteration of the chest, but generally the neighbouring parts of the lung become emphysematous, the lower lobe and diaphragm are drawn upwards, and the ribs become flattened. But the larger a cavity and the more rapid its formation, the less likely is cicatrisation to be satisfactory. From its connection with the bronchi it is under higher pressure than the rest of the lung, there is often a direct centrifugal traction from pleural adhesions, the thoracic wall is less yielding than in the lower part of the chest, the stiffer thorax of adults or elderly people resists cicatrisation much more than that of young people, and if the lung tissue in the neighbourhood is diseased it becomes tougher and less yielding. Any or all of these factors may come into play.

The conditions for natural drainage are almost the opposite of those for cicatrisation. In the upper lobe the arrangement of the bronchi necessitates a constant emptying into the main bronchus, so that secretion can seldom become stagnant. In the lower lobe the force of gravity opposes the removal of pus; it is largely counteracted by the mobility of the walls of the lower part of the thorax, and the strength of the expiratory muscles; but if the ribs are rigid, the lung diseased, and the muscles weak, the expiratory force may not be able to counteract gravity. Secretion collects, irritates the neighbouring parts, and a *circulus vitiosus* commences.

The main hindrance to healing in the upper lobe is therefore the rigidity of the ribs; in the lower lobe the stagnation of secretion. In the former, opening of the cavity is unnecessary as a rule, the indication is to mobilise the surroundings by extensive resection of the ribs. In the latter, opening and drainage play the most important part; it is only necessary to make the walls yielding where the abscess is very large or of old standing. It is not always possible to secure complete closure of the cavity, especially where there are secondary cavities or bronchiectases in the neighbourhood, but an incomplete result may be sufficient to save the patient's life, or to make it more endurable, by diminishing cough and sputum, and allowing him to regain strength, while the danger of secondary gangrene of the lung is also lessened.

The most important conditions for the success of pneumotomy is the diagnosis of an abscess. It is much easier to say that this is present than to be sure of its position, size, and whether one or more are present. The sputum usually gives the first hint, and usually by its amount; but it is not possible to determine

the size of a cavity from the amount of sputum, for the bronchial mucous membrane is always stimulated to secretion by the passage of pus, especially if it be putrid. The macroscopic appearance of the sputum gives little help, but the microscopic examination may be of great importance. The presence of elastic fibres indicates a cavity in course of formation or increasing in size; their absence does not exclude a cavity; it may be stationary, or the fibres may have been dissolved, as is apt to be the case in putrid secretions. Crystals of the fatty acids generally point to a cavity which has existed for some time. The organisms present are usually numerous, most varied in chronic and putrid cases. If they consist almost entirely of streptococci, staphylococci, or pneumococci, the presumption is in favour of an empyema which has burst into the lung; parenchymatous abscesses which have burst recently into the bronchi give mixed bacteria at once. Evil-smelling sputa may occur in simple chronic bronchitis; they are more frequent in cavities, abscesses, and bronchiectases, in recent abscesses only if they are complicated with gangrene, in old cavities often when the walls are intact. In cavities in the lower lobe expectoration is apt to be periodic, and in relatively enormous quantity at a time; and the occurrence of this phenomenon when certain positions are assumed or pressure applied in special places, may give a hint of the position of the cavity.

Auscultation and percussion are less useful than one would expect. The classic physical signs of cavity are applicable mainly to vomicæ of the upper lobe, which from their position are kept tense and air-containing, and as these are generally tubercular they are seldom amenable to surgical treatment. Cavities of the lower lobe seldom contain much air, they are generally flabby and slit-like, and nearly full of secretion. To percussion they are generally dull, with more or less tympanitic resonance in addition, and they usually simply weaken the breath-sounds. After expectoration there is little change, as the yielding walls fall together; they only give typical signs of cavity if the surrounding tissue is unyielding. This is most likely to occur in large, rapidly formed post-pneumonic abscesses and in bronchiectasis following on pleurisy. The occurrence of modifications of bronchial breathing with consonating râles after expectoration is of course very suggestive, especially if these signs are absent in the intervals.

Examination with the X-rays has a certain value, especially because deep lesions are as evident with them as superficial ones, and because multiple lesions are easily observed, but they give no hint of the actual condition of the affected part unless there be a large air-filled cavity.

It is often impossible to say whether the pleura is adherent over the part selected for pneumotomy; the history of a previous pleurisy, local diminution in the movement of the ribs, local inspiratory indrawing, diminished respiratory excursion of the borders of the lung, feebleness of breath-sounds, and dulness on percussion, are all helpful, but not necessarily conclusive. As far as experience goes, acute abscesses are most often associated with adhesion. Bronchiectases from contracting pleurisy of course present them, but not those due to chronic bronchitis, and very often not those due to inspired foreign bodies. One must, however, endeavour to come to a conclusion on this point, for the escape of pus during operation on a lung abscess into a normal pleura is a most dangerous accident, partly from sepsis, partly from collapse of the lung.

Of the different varieties of abscesses, the *acute simple abscesses*, which usually follow on pneumonia, are rare, and often heal spontaneously in from three to ten weeks. Should this not occur, they are eminently adapted for surgical treatment, as the pleura is usually adherent, and the rest of the lung sound, so that cicatrisation is easy and rapid. Putridity may arise in two ways: either the organisms may make their way into an abscess already formed, in which case the secretion becomes putrid, but the walls are rarely affected, and the course of the abscess is not greatly altered; or the organisms may penetrate sound or inflamed lung and give rise to gangrene, with the secondary suppuration of demarcation. In the second case the prognosis is naturally much graver, though small foci may be separated and the putridity disappear. There is no doubt that these fresh gangrenous foci should theoretically be operated on even before demarcation occurs, in order to provide drainage, as thus the probability of secondary infection of other parts of the lung is greatly lessened, but in practice it can be only very exceptionally possible to determine their position. Circumscribed sub-pleural gangrene is always associated with pleurisy, and forms one of the varieties of empyema. In many cases where gangrene is a sequence of pneumonia the condition of the patient is such as to negative the idea of operation; the results are much better where the condition arises in a previously normal lung, or where some chronic condition only is present.

Chronic abscesses are always surrounded by thickened lung tissue, and almost always associated with secondary bronchiectases from stagnation of secretion. On the other hand, bronchiectases often lead to abscess, from ulceration of their surface and invasion of the lung. The two are therefore almost always found together. The position of these cavities is often very difficult to determine, though they are usually in

the lower lobe, and it is especially difficult to say whether one large cavity or several small ones are to be sought. In all chronic cases there should be a wide resection of ribs, partly to reach accessory cavities, partly because only in this way can the loss of lung substance be compensated for. When the abscesses are putrid, secondary foci are specially common and intercurrent gangrene and inflammation more frequent. The operative results are therefore not satisfactory.

In regard to all abscesses one may say that the earlier operation takes place the better. Acute cases heal easily, chronic ones badly, while putridity makes either variety more serious.

Abscesses from foreign bodies are probably always putrid, and usually occur in the right lower lobe, and in the central part of the lung. Secondary abscesses and bronchiectases are apt to be present, pleural adhesions to be absent. It is the surgeon's duty to try to remove a foreign body which has been inspired, by way of the bronchi as early as possible. Should the case not be seen until putrid abscesses have appeared, a bronchial fistula should be formed under the angle of the right scapula, so that even if the primary abscess cannot be found the formation of further secondary foci may be prevented.

Tubercular cavities occur mainly in the upper lobes, and from what has been said it will be evident that they are little suited for operation. Drainage by the bronchi is usually sufficient, the walls do not tend to fall together, and the danger of hæmorrhage forbids us to attack their diseased lining membrane. Mobilisation by extensive resection of ribs without opening promises more, but in order that it should be of use one would require to be certain that one was dealing with a fairly advanced condition of one apex alone, while the rest of both lungs was healthy. This is a very rare condition. The actual removal of a tubercular apex has been done, but this operation will also probably be always a surgical curiosity.

SURGERY

GENITO-URINARY SURGERY

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THE better route to adopt for removal of the enlarged prostate is as yet not definitely agreed upon by surgeons. Some advocate the suprapubic route while others prefer the perineal. Albarran in a paper, "Cure radicale de l'hypertrophie de la Pros-

tate" (*La Presse Medicale*, May 1902), remarks that to establish the indications for perineal prostatectomy it is necessary to study (1) the evolution of the disease; (2) the results of other treatment; (3) the gravity of the operation; (4) its immediate and late results. He points out that in prostatic cases the enlarged prostate is primary and the bladder symptoms secondary to the enlargement. Further, that in the majority of cases the want of expulsile power is not due to lost power in the bladder wall as a rule, but to the difficulty in the urine being expressed past the enlarged prostate; and from this he argues that there is a strong reason to attack the prostate in treating the condition as, if the obstruction be removed, the bladder will be able to be emptied voluntarily. "The contractility is dormant, not really lost," and it is important therefore to know at what point contractility can return, but this can only be known by experience. In twenty-nine patients after perineal prostatectomy he found that twenty-seven could easily and spontaneously void their urine, although, in some of them, inflammatory lesions had been intense and retention of long duration. In the two other cases some residual urine persisted, but urination was otherwise easy and spontaneous. The fact that recovery of expulsile power is the rule in such cases rather than the exception is a most valuable observation which has been, within recent years, demonstrated frequently, and has strengthened the position of the surgeon enormously when he advocates attempted radical treatment in prostatic affections. The first step towards this was made when the term *paralysis* of the bladder was shown to be inaccurate, and the term *atony* substituted in place of it, but naturally so long as surgeons merely treated the symptoms in such cases without attacking the actual obstruction the belief that the contractile power of the bladder wall was merely dormant, not really lost, was without proof. Now fortunately the increasing number of cases in which recovery of voluntary expulsile power has been got serves to prove that it is not only possible but probable for it to return when the obstruction has been got rid of.

Albarran deprecates suprapubic prostatectomy because of its high mortality, which he gives as 10 to 12 per cent. Further he says it is often an incomplete operation. The writer does not wish in this summary to attempt to combat this view, but would point out that operative proceedings from a statistical standpoint have to be most carefully considered. Recent suprapubic operations have a much lower mortality than formerly, and as Albarran's series of perineal prostatectomies have only been performed during the past year they should be compared with the more recent suprapubic operations in which the mortality is

much less than 12 per cent. and the curative results are better than those formerly reported.

To strengthen the case for perineal prostatectomy Albarran reports upon his own cases, thirty-five in number, with one death. This low mortality, he says, is the more remarkable, as the cases have not been selected—later in the paper he gives certain contra-indications to operation. The average age of his cases was sixty-three years, and two were seventy-three. All without exception were septic; many had renal complications, and others were in a bad general state of health. In one case the prostate weighed 14 ounces, and was as large as two closed fists. The first two cases were not operated upon by his present method, which is a "sub-capsular prostatectomy by piecemeal." This method he has described in detail with numerous illustrations in the *Reports of the French Association of Urologie*, 1902. The results of thirty-three cases operated upon by his present method are given as follows. One has been lost sight of, and another is too recent to report upon, but thirty-one can be grouped under three headings.

1. *Those with recent complete retention.*—Four cases operated upon, eight to ten months ago, are completely cured, and can easily empty their bladders.

2. *Those with chronic incomplete retention.*—Thirteen cases. Twelve operated upon, four to ten months ago, do not require catheterisation; seven empty their bladders completely; five have residual urine, 12 to 30 grammes; one patient only has from 80 to 100 grammes (4 to 6 ounces), and although better since operation, washes out his bladder once daily. One patient has a recto-urethral fistula accidentally made at the operation.

3. *Chronic complete retention.* — Fourteen cases. Thirteen are completely cured, empty their bladders completely, and do not use the catheter. One had complete retention for three months. Ten retention for from eight months to two years. Two complete retention for five years, and one for ten years. The oldest of these operations is thirteen months. One patient who had retention for five years had, three months after operation, 100 to 150 grammes of residual urine, and he still uses the catheter once daily.

To the value of the therapeutic results in these cases Albarran says exception has been taken on the ground that the operations have been too recently performed, but in his opinion such objection does not hold—the results are good, and he sees no reason why they should not continue.

He thinks the operation should be performed whenever the prostatic gland is palpably of a certain size. This is an indefinite statement, but presumably the meaning is that if a

patient have prostatic symptoms, and the gland is obviously enlarged, it should be excised. Indeed, he says whenever incomplete chronic retention is established operation is urgent. This is the most difficult point to determine in regard to the whole question of prostatism. When should operation be done? The writer believes early operation advisable, but few patients at the present time will submit to what after all is a serious operation, when they can do their business and enjoy life with to them the apparently merely trivial inconvenience of rising once at night and finding the stream a little delayed in beginning. They do not appreciate that once begun residual urine tends to increase, and the evils of backward pressure upon the kidneys sooner or later become manifest. The problem is one of the most difficult in surgery, and it would almost seem that Albarran in his enthusiasm and success has forgotten that all prostatics have not got prostates suitable for excision. He does, however, point out certain contra-indications.

1. The very aged in whom catheterisation is easy.
2. In grave double renal disease.
3. In peri-cystitis and peri-prostatitis.
4. Where the general condition of the patient is against any serious operation.

He advises that a quiescent period be chosen for operation — no congestion nor fever should be present, and to get rid of these palliative measures should be adopted. General infection, vesical in origin, should be treated as Guyon advises in similar conditions due to stricture, *i.e.* by tying in a catheter. When, however, there is vesical infection, perineal prostatectomy should be resorted to, just as in severe pyonephrosis nephrotomy is indicated. When a vesical calculus is present he thinks prostatectomy still further indicated, as by the removal of the obstruction at the neck of the bladder an actual laboratory for the formation of stone is got rid of, and the liability to recurrence is diminished. The latter part of this paper, while applied by Albarran to perineal operative procedure, is, in the opinion of the writer, equally applicable to prostatectomy by the suprapubic route.

The Surgical Treatment of Sterility due to Obstruction at the Epididymis, by Professor Martin, University of Pennsylvania, and others, forms the subject of a most interesting paper in the medical bulletin of that university. It is generally conceded that, as a rule, barren marriage is dependent upon some abnormal condition of the ovum or of the female reproductive organs. Gross, however, in 192 cases of examination of both husband and wife, found the husband at fault in 33, or over

17 per cent., 31 presenting azöospermia and 2 aspermia. In the hope that microscopical examination of presumably normal semen might show a structure, conformation, or reaction to stains which would be helpful in distinguishing normal from abnormal spermatozoa, researches embodied in this paper were conducted in the Philadelphia Chemical Laboratory, and this part of the thesis is carefully and lucidly described, while many beautiful plates illustrate the text. It is the experimental portion of the work, however, which is chiefly of interest to the surgeon. Motility of spermatozoa seems essential to fertility. The epididymis is almost certainly a secreting tube, the secretion being destined for the nourishment of the sperm cells—the vas probably has the same function. Passage through the entire epididymis is not necessary to the fertility of the spermatozoa. Based upon these views, experiments were performed on three dogs, the vas being grafted to the head or body of the epididymis. From these motile spermatozoa were got. In man the block due to gonorrhœal epididymitis is usually at the tail of the epididymis, and as a result of the above success it was determined to perform an anastomosing operation upon man when a childless marriage was dependent upon azöospermia consequent upon a double obliterating epididymitis. A suitable patient was got, and anastomosis performed by freeing the vas at about the level of the top of the testis and opening its lumen by a longitudinal cut one quarter of an inch long. The epididymis was then approached from the outer side and its entire length exposed. A portion of its head was excised, and into the wound thus made the vas was implanted. Union evidently occurred, as nineteen days later semen was got for examination. Twelve hours after emission it showed motile spermatozoa, apparently healthy. Whether such will prove fertile or not has yet to be proved, and also the important question whether the lumen of the vaso-epididymal anastomosis will persist.

Professor Peters of Toronto reported a case of transplantation of ureters into the rectum for exstrophy of the bladder, in the *British Medical Journal* of June 1901, and he has now added the results of three additional cases in a paper published in the *Canadian Journal of Medicine and Surgery*, April 1902.

The first patient was operated upon more than two and a half years ago, and remains in perfect health. The result of the other operations has been good in two cases, but the third case ended fatally on the fifth day from acute ascending infection.

The operation is summarised by Professor Peters as follows:—The first step is to insert a soft rubber catheter into

each ureter so that its upper end reaches beyond the curve of the ureter over the brim of the pelvis. The catheters are stitched to the ureter. The next step consists in dissecting out the distal ends of the ureters with a fair sized rozette of the adjacent mucous membrane and muscle wall of the bladder. In dissecting out the ureter great care is taken to avoid opening the peritoneal cavity. When this has been done on both sides the lateral wall of the rectum must be laid bare. This is done mainly by blunt dissection, and the peritoneum must again be carefully avoided. The whole operation must be done extra-peritoneally. The point selected for planting the ureter is on the lateral aspect of the bowel just above the internal sphincter. Having determined the exact point for implantation, a pair of forceps is passed into the rectum and pressed against the selected spot. A slight cut is made from the external wound upon the end of the forceps, and the little wound dilated, so that it receives without compression the ureter with its contained catheter. The catheter is drawn through the rectal wound and out at the anus. The rosette of bladder tissue around the ureter is made to protrude into the rectum. This procedure is now repeated on the opposite side. No effort is made to stitch the ureters into position as there is nothing to draw them out, and sutures might impair their vitality.

The treatment of the exstrophied bladder tissue will depend upon its amount, but if not great it requires to be simply dissected off, after which the wound heals by granulation, or if need be a plastic operation may be performed. The patients treated successfully by Professor Peters were able to hold their urine from two to six hours, and improved immensely in their general state of health.

GYNÆCOLOGY AND OBSTETRICS

OBSTETRICAL EMERGENCIES

By J. W. BALLANTYNE, M.D., F.R.C.P.Ed.,
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Persistent Brow Cases.—Persistent brow cases constitute one of the emergencies of obstetrical practice which will tax the resources of the most accomplished obstetrician. In this respect they differ entirely from the *transitory* brow presentations which are in process of becoming face or vertex cases, and they ought not to be studied together but separately. Wallich (*Comptes rendus de la Soc. d'obstét., de gynéc., et de paediat. de Paris*, iv. 18, Jan. 1902) institutes an instructive comparison between the

persistent brow cases treated with symphysiotomy and those managed in other ways. The cases occurred in the Maternité de Lariboisière and the Clinique Baudelocque between the years 1882 and 1902; they were all under the charge of Pinard, Varnier and Wallich; and in all of them antiseptic precautions were adopted. There were twelve cases in which methods other than symphysiotomy were employed: two of these terminated spontaneously, in two forceps were used, in three version was done, and in five basiotripsy or cephalotripsy was necessary; two maternal and seven fœtal deaths occurred, being 16 and 58 per cent. respectively. These cases showed very clearly the uncertainty of the result when the obstetrician began to treat the case with forceps or version, the frequency of prolapse of the cord (three cases) and of uterine rupture (two cases), and the dangers of manual attempts at reduction. Since 1894 seven cases have been treated by means of symphysiotomy. In six of these the head which had been arrested at the brim on account of its abnormal presentation descended rapidly and easily after symphysiotomy had been performed; in five of them the extraction took place as a brow presentation and once as a face, but in the latter instance the extension of the head occurred after symphysiotomy. There was no maternal mortality, but two fœtuses perished (fœtal mortality of 28·5 per cent.). In most of the cases the maternal pelvis was either normal or only very slightly deformed, and the fœtal heads were not markedly enlarged; the dystocia, therefore, was evidently due to the wrong presentation of the head. It is an interesting fact that in several instances head moulding of a characteristic kind had occurred although the head had not passed the brim of the pelvis prior to the performance of symphysiotomy. It is evident from these facts that persistent brow presentations are serious obstetrical emergencies, and it would seem as if the best treatment should be the carrying out of a symphysiotomy.

Neglected Shoulder Cases.—No obstetrician can count upon an immunity from neglected shoulder cases. In his own practice he may turn by external manipulation at the eighth month of pregnancy or perform internal version in the early part of the second stage of labour at the full term, and thus save himself from the task of managing neglected transverse presentations among his own patients; but he may, any day, be called to assist a less careful or less experienced brother practitioner, or to terminate a labour in which an ignorant midwife has complacently allowed the hand to protrude from the vulva for hours. Dr O. Macé (*La Belgique médicale*, ix.

p. 179, March 20, 1902) has therefore summarised and brought up to date the correct treatment of such neglected cases. In many of these instances version is no longer possible, and on account of increasing the danger is not even to be attempted. The cases may be grouped in two categories according as the fœtus is less or more than seven and a half months of intra-uterine age. When the fœtus is small or when although larger in size it is dead and macerated it is permissible to hope that the uterine efforts will expel it *conduplicato corpore* or by means of spontaneous evolution. Most of these cases belong to the *first category*, that of the fœtuses of less than seven and a half months of age. Then the expulsion *conduplicato corpore* may occur; the fœtal body takes the form of a V, the apex of which corresponds either to the upper part of the thorax, or to the lumbar part of the spine; and the doubled up fœtus is thus driven through the maternal passages. In other cases (where the fœtus is a little larger) spontaneous evolution may take place: this mechanism is a slow one and the labour is long and painful; the shoulder descends in the pelvis till the neck has been stretched to its greatest extent; then the head rotates into the suprapubic region; then the shoulder appears under the pubic arch; next the upper part of the thorax, the flank, the breech, and the lower limbs in succession emerge below the axilla of the infant; and finally the head is expelled. When these two mechanisms do not take place or when the obstetrician fears that infection is occurring, then he ought to aid expulsion by partial evisceration of the fœtal trunk and traction with the crotchet. The *second category* contains a very different kind of neglected shoulder case. In it the fœtus has an age of seven and three-quarter months or more. The hand cannot be passed up between the shoulder and the mother's pelvis, version is impossible, spontaneous delivery is not to be hoped for, and uterine rupture is to be feared. There is marked uterine retraction, the uterus fitting the fœtus like a glove the hand; the uterine contractions become more and more violent and tetanic; the ring of Bandl can be distinctly felt, and there is ante-partum hour-glass contraction of the uterus. In the lower part of the organ (that consisting of cervical canal and lower uterine segment) may be found either (1) the head of the fœtus and the shoulder, or (2) the head and both shoulders, or (3) the shoulder alone. The obstetrician, under these circumstances, ought to examine vaginally with great care, and ought not to be very solicitous to make out exactly how the fœtus is situated, otherwise he may easily precipitate uterine rupture. Neither must he leave the case to the natural efforts, for rupture will occur, and the patient will run the additional risks of

septic infection predisposed to by exhaustion and depression of vitality. The rapid extraction of the fœtus, with the least degree of manipulation, is urgently required. It is necessary to divide the spine of the infant, living or dead; and for this purpose Macé recommends Dubois' scissors, which is effective, not costly, and easily sterilised. If the neck is accessible, it is to be divided with the scissors, traction being made at the same time by an assistant upon the prolapsed arm. If the neck cannot be easily reached, it is permissible gently to try to bring down the other arm, and make traction on both arms. If these manœuvres fail to bring the neck within reach, then the trunk is to be divided into two parts by the scissors and partial evisceration accomplished, when it will be possible, by a crotchet fixed into the wound, to extract the fœtus. If the case is complicated by uterine rupture, then it will be necessary still to extract the child by the natural passages, to irrigate gently the site of the rupture, and thereafter to pack the uterus and vagina. The abdominal operation, in the opinion of Macé, is hardly to be recommended on account of the surroundings of the case. If there is septic infection without uterine rupture, then a prolonged antiseptic irrigation of the uterus is to be carried out—first, by means of eight pints of corrosive sublimate solution (1 in 4000), and then by from twenty to forty pints of boiled water. Further, it is recommended that, whether the membranes be complete or not, a thorough brushing (*écouvillonnage*) of the uterine cavity be performed. Finally, there ought to be a subcutaneous injection of saline solution made under the breasts.

DISEASES OF CHILDREN

By J. S. FOWLER, M.D., F.R.C.P.Ed.,
Extra Physician to the Royal Hospital for Sick Children

Intubation and Tracheotomy in Diphtheria.—One of the principal subjects under discussion at the last annual meeting of the German Pædiatric Society was the position of tracheotomy and intubation in the treatment of diphtheria (*Verhandlungen der achtzehnten Versammlung der Ges. f. Kinderheilk.*, Wiesbaden, 1902, pp. 28-144). Bokay, of Buda Pesth, introducing the discussion, dealt with the statistics of laryngeal diphtheria, and showed that in his clinic during the last ten years 2738 cases of diphtheria were treated. Of these, 1255 were before the days of antitoxin, and 714 were intubated, with a recovery rate of 31·8 per cent., as against 66·9 for cases in which intubation was not required. 1483 patients were treated with serum, and

the number of cases in which intubation was performed was only 547, with a recovery rate of 53·5 per cent., while of the non-intubated cases 86·2 got better. While these rates of recovery were not so high as had been attained elsewhere, they compared very favourably with his previous rate of 14·5 per cent. in tracheotomy cases. For ten years past primary tracheotomy has never been done in his clinic unless in most exceptional cases, and he thinks it is only necessary when (*a*) in addition to laryngeal obstruction there is also pharyngeal stenosis, or (*b*) the entrance to the larynx is so swollen as not to admit an intubation tube. In comparing his results with those of others he takes into consideration the class of cases he had to treat, the strength of antitoxin employed, and the date at which intubation was done. Nearly half of his patients were children under three years of age, and on account of the expense the strongest serum could only be used for the worst cases. Intubation should not be performed too early because many cases recover from a slight degree of laryngeal obstruction under serum alone, but the operation is indicated as soon as the laryngeal stenosis has become constant, and the child is commencing to struggle against impending suffocation. Serum treatment has diminished the number of cases requiring operation, and has doubled the rate of recovery. It has also lessened the time during which it is necessary to retain the intubation tube and has thereby lessened the risk of pressure ulcers. Regarding *intubation in diphtheria complicating measles*, he does not think that the greater liability to pressure ulcer and pneumonia can be looked upon as a contra-indication to the operation. As to the alleged risk of *pushing the false membrane downwards* during intubation, Bokay thinks that this is a rare accident, and one which very seldom gives rise to real danger. He has, however, had three fatal cases. Should it occur the impending suffocation is usually prevented by rapid extubation, when the loosened membrane is at once expectorated. If not, secondary tracheotomy may be required. The rounded end of the tube and obturator is not likely to force the membrane downwards, especially if care be taken that the tube is absolutely in position before it is released. A very thick false membrane is rare ; as a rule it is so thin as to pass easily through the tube. When a thick membrane is present it is usually attached below the cords, and the tube slides easily into its lumen without displacing it; the false membrane also is most firmly attached at the cords, so that it is not likely to become displaced here either, although the position favours the accident. A great part of the difficulty sometimes experienced in breathing after the tube has been inserted is due to the presence of sub-glottic œdema,

not to detachment of the membrane. To diminish the risk of the accident it is best to use tubes of the American pattern, with rounded ends, rather than those which are conical or have their end obliquely cut off. *Blocking of the tube with membrane* is rare, because the patches usually come away in small pieces which pass readily through the tube. The possibility should, however, be guarded against by leaving a thread attached to the tube so that it may easily be withdrawn in emergency, and also by employing a tube sufficiently long to reach the sixth or eighth ring of the trachea. Short tubes, and those with conical points or lateral openings are much more liable to blockage. *Intubation and Pneumonia.*—Pneumonia is, of course, a very common complication of croup, and usually occurs between the fourth and eleventh days. Intubation no doubt favours its occurrence when the respiration (and especially the expiration) is already becoming insufficient, not, however, on account of the narrow inlet of the tube, but by preventing the closure of the vocal cords which is necessary to preserve the expulsive power of the cough—an objection which also applies to tracheotomy. There is little doubt that the primary agent in causing pneumonia is the streptococcus or staphylococcus, and that the Loeffler bacillus is only secondarily present. For this reason the French system of isolating such cases by means of screens is of the very highest value as a mode of preventing the spread of infection. The danger of pneumonia from the aspiration of particles of food after intubation is largely theoretical. *Ulceration of the larynx from pressure of the tube* is best treated by O'Dwyer's method. If, after convalescence from diphtheria, the tube cannot be removed on account of laryngeal ulceration, a special tube with a thin neck and a somewhat bulging body should be employed. The thinner part is coated with gelatine, into which powdered alum is pressed, so that when worn a mild astringent is kept applied to the ulcer. This Bokay has tried successfully in five patients, and advises that in all cases where the intubation tube has to be kept *in situ* for more than 100 hours, and in which there is progressive diminution of the intervals during which the tube can be dispensed with, a tube coated in this fashion should be employed. It may be kept in for a day or longer, and replaced by a fresh one after being withdrawn for half an hour or so. In his cases the time required for cure of an ulcer by this means was from 70 to 147 hours.

Siegert of Strassburg is a no less strong supporter of the alternative use of tracheotomy and intubation than Bokay is of the latter alone. He has collected statistical material from over 90 hospitals, and concludes that with antitoxin treatment the mortality from any operation for laryngeal obstruction should

not exceed 34½ per cent. He finds that in one-half of the hospitals tracheotomy is the invariable operation; in about one-sixth, intubation; while about one-third use intubation or tracheotomy as may seem indicated in any given case. In 64 hospitals with 11,104 tracheotomies the average rate of mortality was 34·29 per cent. during the whole period for which antitoxin has been in use, and during this time the annual variations have been very slight. Of the 10 hospitals in which primary intubation is now practised only three did it during the whole of the period under review. The total number of cases intubated was 3830, with a mortality of 35·54 per cent.; in addition, secondary tracheotomy was needed in a considerable number of these, so that intubation may be said to have failed in over 40 per cent. of all cases in which it was employed. In 26 hospitals where tracheotomy or intubation was practised according to circumstances, the mortality of 7681 cases was 33·64 per cent. About three-fourths of the cases were primary intubations, the remaining one-fourth being tracheotomies. A critical study of the statistics leads Siegert to the following conclusions:—1. Tracheotomy and intubation give about the same mortality in hospitals. 2. In order to attain the standard of tracheotomy, intubation must, if necessary, be supplemented both by primary and secondary tracheotomy. 3. In hospitals where tracheotomy was formerly the rule, giving it up in favour of intubation has not diminished the mortality. 4. Intubation renders tracheotomy unnecessary in two-thirds of all cases. 5. The best results are got by employing both tracheotomy and intubation. The advantages of tracheotomy are that it can always be carried out where local conditions make intubation difficult; it admits of the mechanical removal of membrane from the trachea; it does not interfere with the feeding of the patient; and it is less liable to cause pressure ulcers.

Pfaundler of Graz discusses the *after history of patients who have been subjected to either tracheotomy or intubation.* Of a total of 262 cases, 173 were followed up. Eight of these died from various causes almost immediately after leaving the hospital; of the 165 remaining, 83 per cent. showed no bad effects whatever; 16 (9·7 per cent.) had slight inconvenience, such as occasional breathlessness, hoarseness, delay in speaking, or stammering, but it was doubtful whether such were really to be ascribed to the operation; and 12 (7·3 per cent.) suffered from definite ill-health,—persistent hoarseness, cicatricial stenosis of the trachea, chronic interstitial pneumonia and bronchiectasis, and tuberculosis of the lungs being found in three cases each. Of the 173 children in question, 141 were intubated, 16 had tracheotomy done, and 16 had both intubation and tracheotomy. Pfaundler

concludes from an examination of his series of cases that, while serious after-consequences are practically negligible after intubation, after tracheotomy or tracheotomy plus intubation they are not very infrequent, and that this should weigh in favour of the more general employment of intubation where possible.

Trumpp, of Munich, also read a paper on the ultimate results of the two operations. His paper does not lend itself to condensation, so that it must suffice to give his conclusions —viz., (1) the statement that persons on whom tracheotomy has been performed are unduly liable to tuberculosis, cannot be confirmed; (2) nevertheless a not insignificant percentage of cases, both of intubation and tracheotomy, are followed by unpleasant sequelæ—hoarseness, breathlessness, or liability to catarrh. In all, 64 patients out of 328 who were followed up suffered from affections of the throat, lungs, or trachea. Trumpp's paper is based upon inquiries made at the different hospitals, and on the examination of recruits in Bavaria during 1901. Of those examined for military service, ·48 per mille showed the scars of old tracheotomy, and less than half of these could be passed as fit. Among other subjects discussed by the Society were the general mortality of diphtheria in Germany in the pre-antitoxin period and now, bringing out the fact that it has diminished about two-thirds in recent years. Papers were also read on the operative treatment of post-intubation laryngeal stenosis.

The Functional Activity of the Cortical Motor Centres in Infancy.—Thiemich has an interesting paper in the *Ztschr. für klin. Med.*, Bd. xlv. p. 226, 1902, on this subject, in which he endeavours to overthrow Soltmann's view that these centres are functionless in young children, and that this inactivity of the cortex is the cause of convulsions in infancy. For the study of the subject we may proceed either by experiment or clinical observation. The former of these has, in the hands of different observers, given rise to very contradictory results as to the time at which, in different animals, the centres first respond to electrical stimuli; and, on account of the varying degree to which the nerve fibres are medullated in different animals and in man, it is difficult (seeing that the possibility of electrical stimulation probably depends on the presence or absence of medullation) to transfer these results to the human subject. The difference in the relative size of the brain and cord in man on the one hand, and in animals on the other, is also an objection. It is also questionable whether absence of electrical response on the part of the cortex involves the absence of all physiological function. Thiemich's observations have pro-

ceeded along quite different lines. It is known that the cortical centres do not represent isolated muscles, but rather movements in which groups of muscles take part in a co-ordinate fashion. Two of the simplest of these co-ordinate movements, which can be produced in apes by stimulation of the cortex, are clenching and opening the fist. The act of closing the fist consists not only in the flexion of the fingers, but in an associated dorsiflexion of the metacarpus, as may be seen when the hand is allowed to hang loosely downwards and then forcibly clenched. There is a "*synergie*" between the flexors and extensors of the hand, and this is of cortical origin, as both experiment and clinical observation show. An analogous "*synergie*" between flexors and extensors exists on forcible opening of the closed hand, and in extension and flexion of the leg—extension being associated with plantar-flexion of the foot, and flexion with dorsiflexion. Up to the present the movements of young children have generally been studied from the point of view of their being voluntary or involuntary (impulsive), and Thiemich seems to have been the first to try and ascertain whether or not the manifold voluntary movements of the newly-born show even the above simple forms of co-ordination. If such were the case, then the conclusion is justifiable that the cortex is functionally active at birth; if not, his task then was to find out at what age co-ordinate movements developed. In infants up to ten days old he finds that while the child is at rest the arms and legs are usually flexed and adducted, or the latter are sometimes extended, abducted, and rotated out. When the child is stimulated in any way a great number of complex movements appear, and when one watches the clenching of the fist, it is seen that the flexion of the fingers is associated with volar flexion of the metacarpus in the very great majority of cases. In only a very few infants is there a co-ordinate dorsiflexion of the metacarpus along with closure of the fist. The co-ordinate movements of extension and flexion of the legs occur in an even smaller proportion of young infants, the foot as a rule remaining dorsiflexed whether the leg is flexed or extended. Individual differences in co-ordination do not run parallel with differences in general development. A factor which may possibly play a part is the amount of movement which a fœtus makes in intra-uterine life. The development of these co-ordinate movements in extra-uterine life depends to some extent on the general growth of the child. *A priori* it might be thought that they would be acquired earlier in restless children than in quiet ones, but Thiemich has not been able to assure himself that this is really so. The lesser degrees of malnutrition seem to cause no delay in cerebral development,

and on the whole it may be said that these movements are normally acquired by the end of the third or fourth month, though now and then they are seen earlier. One interesting observation which Thiemich has made deserves mention. If we give an atrophic child about seven months old a pencil to hold, he seizes it with dorsiflexed hand. If we then try to pull the pencil away, and thus stimulate him to hold it tighter, the hand at once assumes the position of volar flexion—that is, the position which shows absence of cortical co-ordination. The original grasping of the pencil was characterised as co-ordinate by three circumstances: first, the opening of the hand previous to grasping was accompanied by opposition of the thumb (which is never the case in young infants); second, the closing of the fingers was accompanied by dorsiflexion of the metacarpus; third, the movement of the hand to the pencil was guided by the eye—the whole indicating a stage in the cortical development far ahead of that required for the production of the simplest co-ordinate movements referred to above. And yet, after the child had maintained this complex co-ordinate action for a short time, it actually returned to the movement characteristic of the pre-co-ordinate epoch of life. This phenomenon, which is only found in weakly children, must be regarded as due to fatigue, and shows how easily co-ordination is exhausted in childhood. Thiemich concludes that the cortical motor centres are functionally active in children after the third or fourth month, and therefore that Soltmann's theory of eclampsia cannot hold good for the great majority of cases in which fits occur in healthy children after that age.

New Books and New Editions

Typhoid Fever and Typhus Fever. By Dr H. CURSCHMANN, Professor of Medicine, Leipzig. Edited, with Additions, by WILLIAM OSLER, M.D., Professor of the Principles and Practice of Medicine, Johns Hopkins University, Baltimore. Authorised Translation from the German under the Editorial Supervision of Alfred Stengel, M.D., Professor of Clinical Medicine in the University of Pennsylvania. London: W. B. Saunders & Co.

THIS work forms one of the volumes of "Nothnagel's Encyclopædia of Practical Medicine." The principal volumes of this encyclopædia, although hitherto known in this country only in the German, are now gradually being reproduced in English, and so made accessible to a wider circle of readers. Each

volume is carefully translated, and is edited by an expert upon the subject with which it deals, the present volume having as its editor Professor Osler, whose hand can clearly be traced in numerous important contributions, especially in the first portion of the work—that on typhoid fever.

Since the classic of Murchison on "The Continued Fevers," there has been a growing desire for a treatise of similar extent which should embody the results of the most recent investigations and research, and it must be acknowledged that the work now before us goes a long way to supply this want.

The larger portion of the book is, as might be expected, devoted to typhoid fever, of which an elaborate and detailed account is given. The author has obviously had very extensive experience in this disease, especially in the hospitals of Berlin, Hamburg and Leipzig, to draw upon; but, in addition, he has brought together a wealth of illustration and information, clinical and statistical, from the writings of observers all the world over, such as greatly enhances the value of this volume as a work of reference. While careful and complete accounts of the etiology and pathological anatomy of typhoid are given, the symptomatology has received the greatest attention; and not merely have the various recognised phases of the fever been described with the fullest detail, but there seems scarcely a deviation or clinical possibility that is not reckoned with.

One of the most interesting and informing chapters is that on recrudescences and relapses, which contains many original observations of much practical value. A very useful and concise account is given of the bacteriological and serum diagnosis.

In discussing the treatment Prof. Curschmann (who we are glad to notice gives due credit to the work of Graves and Murchison) sets little value upon the antiseptic method once so much in vogue. "Even though it were assumed that there existed a procedure capable of injuring the pathogenic micro-organisms in greater degree and more permanently than their hosts, it would have little value on account of the relations of the typhoid bacillus to the intestine and its contents. It is known that even at a time when the disease does not generally come under observation for treatment, even often when the clinician has as yet no knowledge of its existence, the bacilli have already passed from the intestines into the follicles, the mesenteric glands, and more distant organs, especially the spleen, where naturally they are no longer accessible to antiseptic remedies."

Antipyretic treatment is dealt with on the whole in a judicious manner. As might be expected, hydrotherapeutic measures, so much resorted to on the continent, are given considerable promin-

ence." "Personally," says Prof. Curschmann, "I still employ very cold baths only exceptionally. In general I content myself with lukewarm baths, and with especial preference for those that are gradually, and then usually but moderately, cooled, such as Von Ziemssen has introduced into practice. . . . Even in severe cases, and at the height of the disease, from two, to at most four, baths in the course of twenty-four hours will generally be sufficient." The stronger antipyretic drugs are for the most part condemned from the risks to the circulation, and even the less active appear to be comparatively rarely employed. Quinine is preferred to antipyrin and phenacetin, which, however, are occasionally used. It will seem to most practitioners in this country a somewhat heroic measure to give from 2 to 5 grammes of antipyrin, even although the dose be divided into two parts, with an hour's interval between each.

The writer recommends a modified form of "open-air treatment," which is not usually practised among us. "In hospital practice, and wherever possible in private practice, I have the patients during the summer lie for hours in the open air, with suitable protection from sun and rain."

Typhus Fever forms the subject of the second part of the book. A concise and useful historical account of the disease is given at the outset, and the subject of the etiology is fully discussed. The symptomatology is well described, and the morbid changes in the various organs affected in this disease are given in a short, but satisfactory manner. Considerable importance is attached to occasional affections of the larynx, not merely to a catarrhal condition frequently observed, which usually disappears, but to alterations of a more profound character, in the form of ulceration and perichondritis.

"Perichondritic abscesses are undoubtedly the direct cause of severe pulmonary and pleuritic complications, particularly certain forms of lobar and lobular pneumonia, ending in gangrene or gangrenous pleurisy. They are produced by aspiration of septic masses from the abscesses, which, as we have seen, tend to rupture into the interior of the larynx after a certain time."

Numerous illustrations, accompanied with instructive temperature charts, are given of the varieties and aberrant forms of typhus.

The treatment, prophylactic and specific, is detailed in a satisfactory manner, the value of the open-air (open window) plan is strongly emphasised, both for its soothing effects upon the nervous symptoms and for its preventing the spread of the disease among the attendants. Many practical directions are given both as to dieting and to the treatment of special conditions which may arise in the progress of the disease.

The volume concludes with a useful bibliography of the literature of typhus.

On the whole this work may justly lay claim to be a standard authority upon the subjects with which it deals, and it will, if we mistake not, be so regarded by the profession. It is not without its defects, but they are by no means of a serious kind. It seems somewhat surprising that in making this excellent translation for English readers it did not occur to those responsible for it that in this country we estimate the bodily temperature by Fahrenheit's scale; this reading should have been given alongside that of the Centigrade scale which is used throughout the book.

We have no hesitation in recommending this work as a thoroughly trustworthy as well as highly interesting account of the two important fevers of which it treats.

The Operations of Surgery. Intended especially for the use of those recently appointed on a Hospital Staff, and for those preparing for the Higher Examinations. By W. H. A. JACOBSON, M.Ch. Oxon., F.R.C.S., Surgeon, Guy's Hospital; and F. J. STEWARD, M.S. Lond., F.R.C.S., Assistant-Surgeon, Guy's Hospital, and the Hospital for Sick Children, Great Ormond Street. Fourth edition, with 550 illustrations. Vol. I. pp. 727, Vol. II. pp. 776. London: J. & A. Churchill. 1902. Price 42s.

THE profession will welcome this new edition of Mr Jacobson's well-known and deservedly popular work. Surgery—thanks to our present means of preventing wound infection—has made such rapid progress during the half decade which has elapsed since the publication of the third edition that the task of bringing the work up to date must necessarily have been a heavy one, and we are not surprised that the author has at last been obliged to call in the services of a collaborator.

Those who are familiar with the somewhat ponderous and unattractive appearance of the former single-volumed editions will learn with satisfaction that the present edition has been issued in two volumes. This departure has enabled the publishers to produce two handier volumes, and to do away with much of the small print, which made the reading of the former editions somewhat tiresome.

Mr Jacobson is responsible for volume i., with the exception of the three last chapters—that is to say, for the operations on the upper extremity, the head and neck, and the mamma; while

Mr F. J. Steward is responsible for the thorax, the abdomen, the lower extremity, and the vertebral column.

The most important additions to the upper extremity have reference to operations on tendons, and especially to tendon-transplantation in infantile paralysis. We cannot help thinking that it would have been more logical to have dealt with the latter subject under the lower extremity.

In the section dealing with the head and neck, valuable additions have been made with reference to the operative treatment of epilepsy, and the sections dealing with tumours of the brain and the surgery of the cerebral ventricles have been brought well up to date. Ballance's modification of the Schwartze-Stäcke operation for middle-ear disease is fully described and well illustrated, but the frontal sinuses have hardly received their due share of attention. A useful account is given, by Mr Edward Shenton, of the method of localisation of bullets in the cranium by the aid of the Röntgen rays.

Mr Arbuthnot Lane's operation for cleft-palate finds a place in this edition; Mr Jacobson prefers, however, in the case of a complete cleft, to postpone operation until the child is at least two years old. We are glad to see that Mr Jacobson recommends the removal of the lymphatic glands as a matter of routine in operating for cancer of the tongue. The operative treatment of tubercular cervical glands is another subject which has deservedly received greater attention, and we are glad to find that the author holds that "curetting or scooping out of the glands is inferior to aseptic treatment by excision."

Butlin's operation for the removal of œsophageal pouches forms an important addition; as also does resection of the cervical sympathetic for exophthalmic goitre, a procedure, however, which does not meet with the approval of the author. The modern methods of treating cancer of the breast are more fully discussed, and we note with approval that Mr Butlin advocates the removal of both pectoral muscles.

Only fifty-four new pages have been added to volume ii., as compared with a hundred and sixteen to volume i. This strikes one as being a small proportion, more especially as volume ii. deals with the operations on the chest and abdomen. The most important additions have been made by Mr Bellingham Smith, who has practically rewritten and greatly amplified the chapter dealing with operations on the uterus and its appendages. Among the other additions may be mentioned those dealing with operations on the ureter; Laplace's method of performing intestinal resection and gastro-jejunostomy; vasectomy; Thelwall-Thomas' operation for internal piles; Mikulicz's (erroneously spelt Mickulicz) operation for the com-

plete removal of a prolapsed rectum, and Mr Arbuthnot Lane's operative treatment of simple fractures.

We are pleased to note that it is "the duty of the surgeon to operate in every case of acute intestinal obstruction." The chapter on appendicitis is practically unaltered, except that the author is more inclined to advise early operation in all acute cases; he does not, however, agree with Mr Lockwood in advising a "determined attempt" to excise the appendix in operating for suppurating appendicitis.

We must confess we are surprised to find that Mr Jacobson still holds that excision of the ankle is "of very disputed value and thus rarely performed," and that "even if the wound heals the foot left is often of little value."

We are told in the preface that many of the methods suggested in these pages will, later on, be rejected; surely the time has already arrived when such operations as excision of the tongue by the écraseur, Rose's operation for the removal of the Gasserian ganglion, Cock's external urethrotomy, and puncture of the bladder per rectum may, with advantage, be omitted.

Mr Jacobson again insists that his book is not intended for those of large surgical experience. The work is certainly an excellent compilation, and its value is greatly enhanced by the able and impartial manner in which the author has discussed the relative value of different operative measures, and has introduced the fruits of his own extensive and mature experience. As long as the "higher examinations" are conducted more with the object of finding out what the candidate does *not* know, rather than what he *does* know, there will always be a large demand for Mr Jacobson's admirable book.

The Year-Book of Medicine and Surgery. In 2 vols. Vol. on Medicine. Under the editorial charge of GEORGE M. GOULD, M.D. Pp. 715. London and Philadelphia: W. B. Saunders & Co. 1902. Price 13s. net.

THIS volume deserves a place in the study of every general practitioner, and also of those who devote themselves more particularly to the scientific departments of medical science. It contains a resumé of a large amount of original research and of work published during 1901 by medical men, physiologists, pathologists, and physiologic chemists, in all parts of the world, with references to the original publications or magazines in which the work appeared. It is divided into sections on:

general medicine, pediatrics, pathology and bacteriology, nervous and mental diseases, cutaneous diseases and syphilis, materia medica, experimental therapeutics and pharmacology, physiology, legal medicine, public hygiene and preventative medicine, physiologic chemistry. These sections are collected and arranged by men distinguished in their own departments. The section on general medicine occupies nearly half of the volume, that on legal medicine is very short and will be of use chiefly to those resident in the United States. The resumés are concise, the results of investigations are clearly indicated, and in some cases a short critical comment is added. References to original articles are placed at the foot of the pages; the text can therefore be easily read without interruption, and the references are in a convenient position. There is a copious and good index. The volume covers the whole field of medicine and is full of interest.

Quain's Dictionary of Medicine. Third edition. Edited by H. MONTAGUE MURRAY, M.D. London: Longmans, Green & Co. 1902. Price 21s.

IN this edition Quain's Dictionary reverts to its original one volume form. Although there are no fewer than 1892 pages the size is not inconvenient, and the advantages of having everything in one volume are very great.

In spite of the numbers of dictionaries, systems, and encyclopædias which have appeared in the twenty years since Quain was first issued, it holds its own as *the* dictionary for the general practitioner. The articles are almost all rewritten and are well up to date. Several useful plates are introduced, most of them to illustrate new articles, such as Bacteria by Professor Welsh, and the Blood by Professor Muir. Dr Head writes an elaborate article on pain in Visceral Disease, which contains his well-known work, and is clearly illustrated.

The third edition will be welcome to old friends, and will no doubt make many new ones for the book.

Elements of Practical Medicine. By ALFRED H. CARTER, M.D., M.Sc., F.R.C.P., Professor of Medicine, University of Birmingham, etc. Eighth edition. Pp. 590. H. K. Lewis, 136 Gower Street, W.C. 1901.

THIS little work has during the last twenty years run through seven editions.

The purpose of the book, to use the author's words, is to

provide "a simple introduction to the study of the subject as distinguished from a mere epitome of exhaustive treatises." The book is best described as a condensed text-book. While it may prove of some use to the beginner in his first year of medical study, we cannot recommend it to the senior student, for the matter which it contains is, in our opinion, insufficient for the average degree examination in medicine.

The Practice of Medicine; a text-book for practitioners and students with special reference to diagnosis and treatment. By JAMES TYSON, M.D., Professor of Medicine in the University of Pennsylvania, and Physician to the Hospital of the University, etc. Second edition. Pp. 1222, with 127 illustrations. London: Rebman, Ltd. 1901.

DR TYSON is to be congratulated on the appearance of a second edition of his book. The text has been considerably enlarged and a number of new illustrations added. The sections dealing with Infectious Diseases and Diseases of the Nervous System are those in which most changes have been made, while those on the Blood and Vascular System have also received considerable attention. A unique and interesting feature of the second edition consists in the short historical sketch which is appended to many of the described diseases. All the sections appear to have been brought well up to date, that on the Nervous System, for the revision of which Dr William Spiller is responsible, deserves special mention.

Details regarding clinical methods and tests are more fully considered than is usually the case in a text-book of medicine. The book is well "got up," the type is good, and misprints are few and far between.

We confidently predict that Dr Tyson's book will hold its own in competition with its many rivals.

The Gouty at Aix-les-Bains: Diet and Treatment. By LEON BLANC, M.D. Paris, Aix-les-Bains. Pp. 33. London: J. & A. Churchill. Price 1s.

IT seems to us that the author's commendable desire to make known to the medical profession his observations on the treatment of gout would have been better attained had he published them in the pages of some medical journal of repute rather than in a little shilling booklet at three pages a penny. Such pub-

lications are apt to be looked upon as advertisements, and to fall into the hands of the laity, a destination which no doubt never occurred to the author.

Medical Guide to the Hot Mineral Baths of Bath. Published by The Bath Corporation.

THIS is an open unabashed advertisement of the waters of Bath, and none the less useful. It gives full descriptions of the various systems of treatment, extracts from the report of a special commission of the *Lancet*, and a list of hotels and apartments, with their charges, which will be useful to those contemplating sending patients for treatment. Those who wish for a copy should apply to the Town Clerk, at the Guildhall, Bath.

A Text-Book of Pathology. By ALFRED STENGEL, M.D., Professor of Clinical Medicine in the University of Pennsylvania. Pp. 873, with 372 illustrations. Third edition, revised. London: W. B. Saunders & Company.

IN his own words, "the author has tried to present the subject of pathology in as practical a form as possible, and always from the point of view of the clinical pathologist . . . prominence is therefore given to pathologic physiology." Within comparatively small limits the author has certainly succeeded in condensing many facts in general pathology (including bacteriology) and in special pathology, excluding the diseases of the skin and of the organs of special sense. For the most part discussion is necessarily absent, so that the statements made are often abrupt and dogmatic. On the whole, the book contains a very fair account of the matter of modern pathology, but the manner of presenting it is unfortunate. In his anxiety to make the work of reference easy—and by means of leaded headings to the various paragraphs this is excellently done—the author has greatly hampered himself by a too rigid adherence to certain forms. The headings, "Pathologic Anatomy" and "Pathologic Physiology," occur with irritating frequency, and it is amusing to note the strange crowd of stray facts that are at various times impounded under the latter term. It is absurd to try to describe a bacterial disease according to the same rigid forms as a disease of the blood. The attempt only results in such ineptitudes as these: "Bubonic Plague; Pathologic Physiology. It seems that the distribution of the bacillus in the blood, as well as toxic substances, contributes to the general disturbance of health. By successive inoculation immunity has been produced, and toxins and anti-toxins have been obtained from the serum. The importance of these latter, however, is still under consideration." Again, "Pernicious Anæmia; Pathologic Physiology. Pernicious anæmia has many characteristics of an intoxication, and there are undoubtedly toxic bodies in the blood, whether these be essential or incidental. Some investigators seem to have obtained putrescin and cadaverin from the urine. There is more active metabolic tissue-consumption than in health; but the relations of oxidaton to some of the secondary lesions of the disease require further study."

In two other respects the usefulness of the work is impaired—by attempts to exhaust unimportant details and by disproportionate arrangement. Thus diseases of the reproductive system occupy sixty-four pages, while those of the bones and joints have only twenty-four. Less than three pages are allotted to malaria, while nearly two are given up to the coccidium oviforme. The same space is assigned to angiosarcoma and to cylindroma as to melano-sarcoma. The condition of the bone marrow in the various blood diseases is very imperfectly noticed, and the condition of the thyroid in Graves' Disease is actually described as "Vascular Goiter."

The end result is the production of an abridged encyclopædia of pathology rather than an ordinary text-book. The text is reinforced by numerous illustrations, most of which, borrowed from other sources, are excellent. It is, however, unfortunate that the magnification of the photo-micrographs is so seldom given, as much instructive comparison is thereby lost. For the clinician who has already studied pathology and who has sufficient strength of mind not to be led astray by dogmatic statements, this book will provide an interesting summary.

Outlines of Gynæcological Pathology and Morbid Anatomy.
By C. HUBERT ROBERTS, M.D. Lond., F.R.C.S. Eng., M.R.C.P.
Pp. 332. London: J. & A. Churchill. 1901. Price 21s.

IN this volume the author endeavours to supply a distinct want in gynæcological literature. The amount of space devoted to pathology in text-books on gynæcology is necessarily limited, and while the information given may be sufficient to elucidate the clinical side of the subject, it is as a rule insufficient as a guide to the worker who approaches gynæcological conditions from the side of pathology and pathological anatomy.

The volume now before us shows evidence of careful personal study of the pathology of gynæcological diseases, and where clinical details are introduced the author treats them in an eminently practical manner.

In discussing endometritis, the author, adopting more or less Herman's views, strikes out of the class of the inflammations the so-called villous or fungous endometritis and atrophic endometritis. He prefers to call the former adenomatous disease of the body of the uterus, and describes the latter as a senile degeneration. Deciduoma malignum is classed as a sarcoma.

The book is extensively illustrated, more especially in regard to naked eye pathology. It seems to us, however, that microscopic appearances might with advantage have been more fully illustrated, for it is particularly in this direction that the ordinary text-book of gynæcology falls short.

The drawings and photographs are for the most part original, and bear evidence of most careful execution. The author has reproduced Dr Herbert Spencer's plates of deciduoma malignum.

We have pleasure in recommending this volume as a suggestive and useful addition to the library of the gynæcologist.

A System of Physiologic Therapeutics. Edited by SOLOMON SOLIS COHEN, A.M., M.D. Vols. I. and II. London: Rebman, Limited, 1902.

BY the term "Physiologic Therapeutics" is meant the utilisation in the treatment of the sick of agencies similar to those constantly acting upon the human body in health. In the system before us the effort of the editor has been to give a complete account of the means of treatment otherwise than by drugs. Thus the system will treat of electro-therapy; dieto-therapy and food in health; climatology, health resorts and mineral springs; the influence of dry heat, sunlight and artificial light; in fact the various agents which are at the disposal of the physician, but are not procurable from the drug store.

Volumes I. and II. are for the most part from the pen of Dr George W. Jacoby. Volume I. may be a little disappointing to the physician, as it is entirely devoted to the detailed description of electrical phenomena and electrical apparatus. As the author remarks, students and physicians in general evince a distaste for all mathematical demonstrations and technical explanations. We fear the distaste may extend to the first volume of the "System.' Though he has done his best to simplify the necessary details, and the importance of the subject may excuse the elaborate description of apparatus, we cannot help feeling that the section might have been condensed with advantage. Electricity is treated on the basis of the one fluid theory, which the author claims fully explains all the phenomena, simplifies their comprehension, and is the only theory which can conveniently be used in the discussion of dynamic electricity.

Volume II. will be read with greater interest by the physician, for it deals with electro-therapy in the most thorough and complete manner. Addenda are added by different authors on the surgical uses of electricity, on electricity in diseases of the eye, on electricity in the treatment of diseases of the nose, throat and ear, electricity in dermatology, and electricity in gynæcology. An interesting chapter is on the injuries due to the electric current, and from the importance of the subject, one could have wished that it had been elaborated. The volume is an interesting and valuable one, as it brings together a mass of material which had previously to be sought for in the monographs in the special departments of medicine. As is inevitable in such a work, there is a certain amount of waste by overlapping, but this does not diminish the value of the volume as a book of reference. Both volumes are well and very fully illustrated. We confess that we are not attracted by the appearance of the volumes, but as the matter is good and the printing clear, it is perhaps unfair to be unduly critical.

Dose-Book and Manual of Prescription-Writing, with a List of the Official Drugs and Preparations, and many of the Newer Remedies, with their Doses. By E. Q. THORNTON, M.D., Ph.G., Demonstrator of Therapeutics, Jefferson Medical College of Philadelphia. Second edition, revised and enlarged. London and Philadelphia: W. B. Saunders & Co. 1901.

THIS volume consists of 362 pages, and "the aim of the author has been to compile a work of value to the student of medicine," as well as to "the practitioner of many years' standing." However valuable it may be to the students of Philadelphia, we fear it is not a book which will ever be of much value to the students in this country. The so-called "Official Drugs and Preparations" are not those of the British Pharmacopœia, and these might mislead the students in this country.

In the chapter on Prescriptions-Writing some very good advice is given. The weights are not those of the B.P., and this too might mislead students.

In the chapter on "Grammatical Construction of Prescriptions" there are many points raised which are debatable, and with many of the conclusions few will agree.

Most people will admit the B.P. is right in regarding Chloral Sumbul, and others, as indeclinable nouns. The Author (p. 130) recommends a lotion of solution of subacetate of lead, with tincture of opium; a combination which would produce the insoluble meconate of lead. Had a solution of morphine been used this would have been avoided.

The book, however, has been compiled with great care, and will be of value to the students of Philadelphia as a work of reference.

A Treatise on Materia Medica and Therapeutics. By RAKHALDAS GHOSH, L.M.S., Cal. Univ.; Lecturer on Materia Medica, Calcutta Medical School. Vol. I. Calcutta: Hilton & Co. 1901. Price Rs. 1.8 or 2s.

THIS little volume is a manual for students, the subject matter being presented in a condensed and simple style. The drugs are classified mainly according to their pharmacological and therapeutic action. A second volume is promised, and the one before us appears to be reliable and up to date, and ought to be useful.

Clinical Examination of the Urine and Urinary Diagnosis. By J. BERGEN OGDEN, M.D. Pp. 416. Philadelphia: W. B. Saunders & Company. 1900.

IF there be one department of medicine on which it would seem at first sight difficult to write a handbook differing materially from or showing marked improvement upon its fellows, surely it must be clinical urinary diagnosis, on which so many manuals

have appeared in recent years. At the same time Dr Ogden's book will undoubtedly rank among the best of these, and it may safely be said that it contains, in as concise a form as is compatible with the extent of the topic, practically all the information that has been tried and proved which any practitioner is likely to require. The volume is divided into two parts, of which the first, extending to 281 pages, contains the usual directions for the examination of normal and abnormal urines. The instructions given for carrying out the various tests are so complete and detailed that the veriest novice should have no difficulty in following them; in fact, they offer practically no ground for criticism. This part of the book is fully illustrated, largely with original plates, and the author has, wisely, we think, avoided burdening the text with constant references. The second part, however, furnishes the *raison d'être* of this book. In it the author deals with urinary diagnosis, taking up the various diseases of the urinary tract, general diseases such as diabetes, and diseases outside the urinary tract, and describing the changes which the urine undergoes in each; it is, in fact, in pulpit phrase, the "practical application" of the preceding discourse. Of all this part it may be said that it is excellently done, and supplies in small compass information which would have to be sought all through the pages of a general text-book of medicine. Taken as a whole, we may say of this book that while, beyond the introduction of this special section on diagnosis, it presents no specially distinguishing feature, it may nevertheless be confidently recommended as a carefully written and trustworthy guide to the subject with which it deals.

The Pocket Gray. Edited and revised by C. H. Fagge. 5th Edition. Pp. 270. London: Baillière, Tindall & Cox. Price 3s. 6d.

THIS little book has now reached a fifth edition—twenty-second thousand,—and seems as likely as ever to remain a favourite with students. As we should expect from the position of the editor, the present edition has been brought up to date, and has, within the limits prescribed by the publisher, been made much more exact than former editions; but, within such limits, Dr Fagge has found it almost impossible to accomplish his object, and hence we meet with such statements as the following:—"The scrotum contains the spermatic cords," though a few lines further on we are told that the spermatic cord extends from the internal abdominal ring to the testes; and, again, p. 185, it is stated that the pharynx is attached above

to "the under surface of petrous temporal." Nevertheless, students have found, and will find the book of use in revising knowledge which they have already acquired more accurately elsewhere.

Students' Manual of Medical Jurisprudence and Public Health. By G. HAXTON GIFFEN, L.R.C.P. and S.E. Pp. 322. Edinburgh: William Bryce. 1901.

THIS small text-book is intended, as the author states in his preface, for the use of students when preparing for examination. A great deal of information is contained in a small compass. There are a few mistakes, *e.g.* "Pettenkoffer," "phosy jaw," FeC_2I_6 (for Fe_2Cl_6). Acidum carbolicum liquefactum is *not* a 10% solution of phenol. Chloroform can be detected in the lung several weeks after death by inhalation. The student will find this little manual handy for refreshing his memory, but he must not rely on it for all the knowledge he requires.

The Pocket Formulary for the Treatment of Disease in Children. By LUDWIG FREYBERGER, M.D. Vienna, M.R.C.P. Lond., etc. Third, revised, and enlarged edition. Pp. xvi. 260. London: Rebman, Limited. 1901.

THE fact that this book has now reached its third edition is in itself a proof that it fills a niche in medical literature. Dr Freyberger has revised this edition so as to bring it into harmony with the new Pharmacopœia, and has also added an appendix containing the symptoms and treatment of the more common poisons. We have no hesitation in saying that the Formulary will prove of great service to all those who are engaged in practice, or who from other causes are called upon to treat youthful patients. A special feature of the descriptions of the drugs is that in each case the best means of correcting the taste is given, the amount of the flavouring agent required having been determined by experiment. Under this head alone the book yields information which, personally, we should be at a loss to find elsewhere. The prescriptions are all written in Latin, and the few grammatical errors which have crept in here and there should be corrected in the future editions which we think we may safely predict for this excellent Formulary.

A Text-Book of Insanity. By CHARLES MERCIER, M.B., M.R.C.P., F.R.C.S., Lecturer on Insanity at the Westminster Hospital Medical School, and at the London Medical School for Women. Pp. xiv. 222. London: Swan, Sonnenschein & Co., Ltd.; New York: The Macmillan Coy. 1902. Price 6s. net.

DR MERCIER'S object in producing this volume is to provide the medical student with a book on Insanity, which in bulk is more proportional to the time devoted to the subject in the curriculum than are its predecessors. Dr Mercier has more than succeeded, in the sense that the work belongs more to the category of manuals than to that of text-books; but in our opinion this reduction has been effected at the sacrifice of efficiency, the treatment of the subject being sketchy, cursory and incomplete. By primarily divorcing Conduct from Mind, the author makes a mistake, which in the sequel cannot but lead to confusion on the part of the junior student.

Dr Mercier rightly insists on the importance of the observation of conduct in the recognition of insanity. There are many cases in which from the conduct alone the existence of insanity can be inferred. Dr Mercier, however, goes too far when he affirms that "observation of conduct is the key to the subject" (p. viii.); that "only by disorder of conduct can we infer the existence of disorder of mind" (p. xii.); and that "if we discover a disorder of mind that has no influence upon conduct, we cannot regard it as an indication of insanity" (p. xiii.). The foregoing is doubtless the logical outcome of the author's psychological mode of viewing insanity as the failure of adjustment between the relations of the self and those of the not-self. But how does it accord with the subsequent statement of the author in his description of the "fixed delusion" type of insanity? "The distinguishing feature of the insanity is that the delusion has practically no effect upon conduct. The kings and emperors are content to pass their lives scrubbing floors and carrying coal," etc. (p. 141). How again does it accord with such statements as the following, in which the author is evidently now looking at insanity from the biological and evolutionary point of view. "I hold that these are not insanities, but insanity only" (p. viii.); and in speaking of dementia, "every other form of insanity is dementia, with superadded symptoms. In acute insanity the superadded activity is so overwhelmingly important and predominant, that the dementia which underlies it attracts no attention. When the active symptoms subside they leave the dementia outstanding" (p. 110); and, again, "dementia is, in

fact, the common form of all insanity" (p. 111). Most psychiatrists, on the contrary, affirm that in acute melancholia or mania there is no evidence of dementia or enfeeblement of mind in the strict sense, and that 50 to 60 per cent. of such cases recover without any residue of dementia, and that in mental as well as in other diseases, there is a tendency to recovery, as well as a tendency to death. Surely the author is not justified, simply because there is in all mental diseases a tendency to mental death, in slumping the insanities into insanity, and calling it dementia.

The ordinary classification of the Insanities, according on the one hand to the predominant symptoms (Pinel, Esquirol and Clouston classifications), and on the other hand to the clinical course and etiology (Morel and Skae classifications), Dr Mercier adopts, with modifications of his own, under the titles of the Forms of Insanity and the Varieties of Insanity; but he emphasises the useful fact, which curiously most authorities omit to do explicitly, that the same Variety may exhibit different Forms at different times in the course of the same illness. Apart from three pages on the morbid anatomy of general paralysis, there is practically no reference to the pathological findings in Insanity. Like Dr Mercier's other writings, the book is pleasant reading, and the style clear and lucid.

Nervous and Mental Diseases. By ARCHIBALD CHURCH, M.D., Professor of Nervous and Mental Diseases and Medical Jurisprudence in the Chicago Medical College; and FREDERICK PETERSEN, M.D., President of the State Commission in Lunacy, New York. Third edition, revised and enlarged. 10 × 6½, pp. 869, 322 illustrations. London and Philadelphia: W. B. Saunders & Co. 1901. Cloth, 21s. net.

DRS CHURCH and Petersen consider it convenient for the student and practitioner to combine within one volume the allied subjects of Neurology and Psychiatry. Dr Church is responsible for the monograph on Nervous Diseases occupying fully 600 pages, and Dr Petersen for that on Mental Diseases occupying just over 200 pages.

Nervous Diseases is divided into eight parts. Part I. deals with the examination of patients in neurological cases, and contains on page 69 a case-taking scheme which is so unnatural and illogical in arrangement that its use will be more apt to hinder than to help the student. Parts II. and III. deal with the diseases of the cerebral meninges and nerves, and of the brain

respectively; Parts IV. and V. with those of the spinal meninges and nerves, and of the cord respectively; Parts VI. and VII. describe general nervous diseases respectively with and without a known morbid anatomy; and Part VIII. is concerned with symptomatic disorders. These form a useful compendium on Nervous Diseases for the busy practitioner, written chiefly from the point of view of diagnosis and treatment, and characterised by a wealth of good illustrations diagrams and tables.

Mental Diseases is accounted for in thirteen chapters. The first five chapters deal respectively with the definition and classification of insanity, general etiology, general symptomatology, examination of patients diagnosis and prognosis, and general treatment. These chapters are well arranged, carefully written, and form a very good introduction to the subject of Insanity in general. The remaining eight chapters take up the consideration of the Insanities in the following order:—Mania, Melancholia, Circular Insanity, Epileptic Insanity, Dementia, Paralytic Dementia, Paranoia, and Idiocy. The classification thus adopted is based on a mixture of the symptomatological forms and clinical varieties of Insanity; its redeeming feature is its simplicity; its main fault is its incompleteness. Surely if epileptic insanity claims a chapter to itself, such important entities as alcoholic insanity, puerperal insanity, adolescent and climacteric insanities, which of themselves form about 50 per cent. of occurring insanity, deserve equal recognition. And yet apart from a short reference under the general etiology of insanity to alcohol, child-bearing, etc., as causal factors, there is no description in the text of these important types of mental disease, and we are bound to say that the student will come away from the book with a very imperfect conception of the clinical picture of insanity, that is, of insanity as it actually occurs in practice. Added chapters on the insanities of development and decadence, of child-bearing, of alcoholism and other toxæmias, and the rarer clinical varieties, would make the monograph on "Mental Diseases" a really complete and valuable compendium for the student and practitioner.

Golden Rules of Psychiatry. By JAMES SHAW, M.D. Pp. 74. "Golden Rules" Series. Bristol: John Wright & Co. Price 1s.

THIS little volume gives, in a wonderfully succinct and clear way, an epitome of the main facts of importance with regard to the diagnosis, prognosis and treatment of mental diseases, and also a summary of the duties of the medical man in the matter of certification. The first chapter, giving hints as to the mode of examination of a mental patient, is specially good. The

reader, and more especially the busy practitioner, will find many useful suggestions, well arranged and readily got at, to help him in dealing with mental cases—the most difficult and perplexing of all cases to manage in private practice.

A Practical Manual of Insanity. By DANIEL R. BROWER, A.M., M.D., LL.D., Professor of Nervous and Mental Diseases in Rush Medical College; and HENRY M. BANNISTER, A.M., M.D., formerly Senior Assistant Physician, Illinois Eastern Hospital for the Insane. 8vo, 426 pp., illustrated. London and Philadelphia: W. B. Saunders & Co. 1902. Price 13s. net.

THIS work claims to be a handy manual for students, and the student who reads the book while attending a clinical course should certainly acquire a working knowledge of mental diseases. The type is good and the book reads easily, but for a student's manual is perhaps upon the large side.

The chapters on Etiology, General Diagnosis and Prognosis are especially clear. The authors place heredity first among all the predisposing factors of insanity, and alcoholism in the parents is practically placed second as being one of the chief causes of imbecility, idiocy and congenital epilepsy, a fact which has been noted in this country also. Two chapters dealing with "General Symptomatology" leave behind them a feeling of confusion, not because the material is bad, but because there is a want of method in the statement of the useful facts which these chapters contain. Several classifications of Insanity are given, and the one adopted does as well for descriptive purposes as any other.

One of the features of the work is the mention that is made of the various physical symptoms of Insanity; symptoms which up to the present have been either ignored or not considered of sufficient importance to record. The book is also up to date in recording advances in knowledge and treatment. Methods of treatment which are fully described under "General Therapeutics," and also under the treatment suggested for each variety of mental disease, leave behind them a feeling of suspicion that the authors rather believe in the stuffing and exercise methods which are not in accordance with the views they express regarding some of the physical symptoms of certain varieties of Insanity.

The photographic illustrations scattered throughout the book are of no practical value, and the same might be said of the chapter upon Pathology.

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THE SCOTTISH
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INTRA-PERITONEAL RUPTURE OF THE BLADDER—NOTES OF TWO CASES, ONE OF WHICH RECOVERED AFTER SUTURE

By J. SHAW M'LAREN, F.R.C.S.Ed.,
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INTRA-PERITONEAL rupture of the bladder is a comparatively rare accident. The fullest and ablest discussion of it is found in Max Bartel's work and in Rivington's monograph published in 1884; the latter, who includes Bartel's cases, was able to record only about 190 cases in all. But recovery from the accident is a still rarer event. When Rivington's book appeared, he could admit but one genuine case of recovery. Alexander of New York published a paper on the subject last year, and after an investigation which seems to have been thorough, he gives a list of twenty-three recoveries, in all of which, of course, the bladder was sutured.

Comparative rarity of the accident,

and of recovery.

No subject could better illustrate the gigantic stride of modern surgery. Rivington's treatise appeared only eighteen years ago, and yet apparently he required no special candour to write as follows regarding his treatment of a case which he had diagnosed as rupture of the bladder:—"These were the main local symptoms when I saw the patient with Mr Chambers on the Thursday evening, and we were both of opinion that they indicated injury to the bladder. . . . On the following day I found the patient decidedly worse, and we informed his friends that he was in great danger, and would

Striking advance in modern treatment.

probably succumb in forty-eight hours." And the surgeon allowed himself no further exercise of his skill than thus to indicate a term to his patient's life. This case, of course, occurred about thirty years ago, though, as I said, the author was writing not twenty years back; and at the end of the treatise he expresses the opinion that "surgery will achieve no unimportant triumph when occasional and indubitable recoveries are insured by improved methods of treatment." Syme in his day wrote: "If the rupture takes place above or within the reflection of the peritoneum, there cannot be the slightest chance of escape"; and Sir Henry Thompson in 1883, "In any case a recovery has never been known to happen, and can scarcely be regarded as possible." Our own John Duncan in 1886—and he was no timid surgeon—even when he diagnosed a rupture of the bladder, refrained from opening the peritoneum, and ventured only so far as to make a perineal incision, and through it to search the cavity of the bladder for the suspected rupture. He failed to find it, and the patient died. Three years after Thompson wrote, Macormac published two successful cases of suture, the first two recorded.

Chief causes.

The causes of rupture of the bladder are too well known to need detailing here. Blows on the abdomen containing a distended bladder, the crushing of a cart-wheel, falls from a height, etc., are common causes. I was interested in the cause of the rupture in my second case, for it occurs apparently more rarely than any other, a simple fall on the abdomen, not from a height at all, but while the patient is standing or walking on the ground. Rivington's first patient met with just such a simple accident, falling flat on his belly on the pavement on the way home from a house where he had been dining out; while in my case the man fell in the same way while ascending a stair. I have spoken of the distended bladder, and Rivington insists with much persistence that the accident cannot occur but to a fully distended bladder—that is, of course, when the pelvis is not broken—and this view is generally accepted. I cannot say that I think this proved; several cases seem to throw doubt on it, notably one the record of which states that a man was thrown from a dogcart and sustained a rupture of the bladder half an

Is a distended bladder essential?

hour after he had emptied it. This he was certain of, and even though he had been drinking fairly freely, alcohol is scarcely capable of so pronounced a diuresis as to fill the bladder to distension in half an hour. It must, however, be remembered that the "tone" of the bladder varies apparently at different times; in certain circumstances the demand for urination is urgent though the bladder contains only a small quantity of fluid, while at another time it may have collected a larger quantity, and yet its walls are lax enough to require further distension before micturition is called for. In fact—if we are to judge from our sensations—the bladder walls seem sometimes to be more tightly stretched over a small quantity of fluid than over a larger quantity (this seems to be Michael Forster's view), and on such occasions perhaps a rupture might occur more easily.

Why is the rent vertical and at the upper part of the bladder?

The rent is usually vertical—in only 8 out of 110 cases was it transverse—and there is one site for the rupture which is far more frequent than any other, viz., the posterior superior aspect of the bladder. Rivington explains this by pointing to the fact that the lower part of the bladder is supported by the pelvis at the sides and the front, while the upper and back part of a distended bladder is surrounded only by yielding intestines; to this part of the organ the fluid in a bladder which has received a blow will be driven, and the urine will be forced through the least supported part. Alexander, in the paper referred to, dismisses this view without discussion; he holds, with others, that the bladder is driven up against the promontory of the sacrum and ruptures at this point. It is difficult for anyone who studies a frozen section of the abdomen to understand how such contact could take place, and, even if it did, how the transverse projection of the bone should produce in almost every case a vertical rent. It is possible that the disposition of the muscular fibres of the bladder wall has not been sufficiently considered in this regard. They are usually correctly described as consisting of three layers, and while two of them are disposed longitudinally, only one is circular in arrangement. The middle circular layer is not the strongest; its upper fibres tend also to assume the longi-

Disposition of the muscular fibres of the bladder.

tudinal direction, and, in fact, the circular fibres are strong only in the lower, and especially the extra-peritoneal, portion. In other words, the upper and back part of the bladder wall may be considered as consisting mainly of longitudinal fibres, and pressure on the contained urine would tend to drive it through the wall between these strands. If Rivington is correct, as I think he is, in considering this part of the bladder as the least supported, and if there is anything in the suggestion with regard to the arrangement of the muscular fibres, the situation and the direction of the rupture may thus both be explained.

Main symptoms.

It is needless, of course, to discuss fully the well-known symptoms of this accident. Shock, vomiting, inability to stand, hypogastric pain, urgent desire to urinate, with failure in the attempt, bloody urine, and certain peculiarities of catheterisation are usually cited as characteristic symptoms. Shock was certainly not a prominent symptom in my first case; and, of course, in many of the recorded cases it was conspicuously absent. In some cases the patient is able to stand, but in few, I think, will it be found that he is able to stand *upright*. It must be remembered that an urgent desire to urinate may be wanting in the early stages on account of alcoholic intoxication, and in the later on account of uræmic intoxication. Pain and tenderness in the hypogastric region I regard as extremely important symptoms; I found them present in all the cases of rupture of the bladder I have met with, intra-peritoneal and extra-peritoneal. In one case in which the pelvis was broken, but in which the front of the abdomen had not been bruised, it was, of course, of special value. What I mean is the presence of the symptom is important; its absence must not mislead. It is not, perhaps, easy to account for a symptom which was specially marked in the first case I saw, the presence of a distinct hypogastric tumour in the middle line and to the left of it, tender, of course, and distinctly dull on percussion. From this region, when the peritoneum was opened at the operation, bloody urine gushed forth; but it is difficult to understand why in such cases the fluid seems to collect above the bladder instead of dissipating itself in the lowest levels of the pelvis and flanks.

One symptom which I have never seen recorded was related by the first patient I treated. He asserted that as the cart (see note of the case) passed over his abdomen, urine squirted from his penis. I can find no record of that anywhere.

"Bloody Anuria" the chief symptom.

But the chief symptom remains to be mentioned. The patient, as I said, may or may not suffer from a distressing call to urinate, but, on making the attempt, he fails altogether, or voids but a few drops of bloody urine, and when the catheter is passed the picture is the same—a spoonful of bloody urine. Rose, of Berlin, who has a most interesting paper on these cases, has coined an admirable phrase for this symptom, in the term "*blutige Anurie.*" This "bloody anuria" is most striking and characteristic; occurring after an injury to the abdomen it almost suffices for a diagnosis. Rose's phrase is a very happy one, and seems to please the German professor himself, for he presents it now and again with evident favour; and one is grateful for a striking phrase to fit a striking symptom.

The peculiarities of catheterisation are well known. The instrument draws off, as has been said, a few drops of bloody urine, and finds itself in a contracted bladder, which permits no movement of its point, or it—on rare occasions only, I think—passes through the rent in the bladder into the peritoneal cavity. In such a case it may give exit, especially at the later stages, to large quantities of urine almost or quite free of blood.

The injection test *may* help.

The injection and inflation tests are intended to aid the diagnosis. The former consists in injecting into the bladder a considerable quantity of fluid, accurately measured; should it all return through the catheter, the bladder is whole; should only some of it return, there is a rupture of the bladder, through which some of the fluid has escaped into the peritoneal cavity, where it remains. Now, is this a valuable aid to diagnosis? I think not. That is to say, when only some of the fluid returns one can be certain that there is a rent in the bladder; but when all the fluid returns, one cannot be certain there is *not* a rent in the

bladder. Both in intraperitoneal and extraperitoneal ruptures (it occurred in a case of my own) the test has failed—that is to say, all the fluid was returned, though the rent was there. The test has a "positive value" only, so to speak, but the practice of it can do no harm; only excessive reliance on it may deceive. The inflation test consists in mapping out the liver dulness, and then injecting air into the bladder; the air will escape through the rent and obliterate the liver dulness. The test is unreliable when the intestine is distended, and it is always dangerous, as it has been known to produce alarming shock. The practice of it should be abandoned.

The inflation test condemned.

Now and again cases difficult of diagnosis are met with. Such are those in which the history states that the patient was able to walk a considerable distance after the accident, that he passed only a little blood, and that he continued comparatively well for days, either urinating successfully or passing large quantities of urine through a catheter. An extraordinary case of this kind—but extra-peritoneal—is recorded by Dr E. T. Bennett. A drunken sailor, who had received a blow on the abdomen, was admitted to hospital in a state of collapse, which soon passed off. He attempted to urinate, and passed about two ounces of bloody urine. Half an hour later he passed more than a pint of blood-stained urine, and continued to urinate normally for days. Six days after the accident a hypogastric tumour appeared, and in the second week the urine became fetid. On a catheter being used to irrigate the bladder, it was discovered that the instrument could be passed into a cavity beyond that in which it first rested, and that fluid could be injected into this so as to distend it, and could be evacuated from it by pressure. Only then was a rupture of the bladder suspected. The patient survived for five weeks; he had been up and about the ward, and had taken his meals well till near the end. At the sectio a huge cavity was found in the pelvis filled with urine and communicating with a rent in the anterior wall of the bladder. The chief difficulty of a correct diagnosis here was, of course, the power of seemingly normal micturition; as far as I can see, such a power, as might be expected, is indeed very rarely retained by the subject of a

Cases difficult of diagnosis.

ruptured bladder. But it is to be noted that even in this case, at the outset, the chief diagnostic symptom, bloody anuria, was present, though I admit that afterwards it was wanting. I think it will be found in almost every case, at least in the beginning, and it is the chief support of the diagnosis of ruptured bladder, intraperitoneal or extraperitoneal. In conjunction with injury to the lower part of the abdomen it should suffice—or, shall I say, *almost* suffice? In my second case it was enough for me—I declined the injection test. It was enough that the patient had fallen on his abdomen, that he could not urinate but a few drops, and that the answer even to the catheter was, "bloody anuria." The symptom might possibly seem to point to one of two other injuries, contusion of the kidneys and rupture of the urethra. But in a case of injured kidneys, the bloody urine is normal in amount, and the patient exhibits great tenderness on pressure in the loin; while in a case of rupture of the urethra there is a spontaneous flow of blood from the urethra, or drops of blood succeed each other at the meatus, and if the urine is retained, it distends the bladder in an easily recognisable fashion. Such symptoms are absent in a case of ruptured bladder.

Causes of death; peritonitis and uræmia.

The cause of death after rupture of the bladder is either peritonitis or uræmic intoxication. Why should septic peritonitis arise? In the numerous experiments made on animals it has been abundantly proved that aseptic urine can be introduced into the peritoneal cavity or allowed to flow into it from the ureter or bladder without injury to the peritoneum. Should septic urine escape from a ruptured bladder, acute peritonitis will naturally follow at once. But in many cases where peritonitis was the cause of death, the urine was normal.

Why septic peritonitis?

It is well known, of course, that organisms can pass through the intestinal wall even though it is unruptured provided the tissues of the wall are damaged. It is possible that the bruising of the intestines which must result from the application of a force severe enough to rupture the bladder permits the passage of organisms through their walls and thereby the infection of the extravasated urine. In some cases uræmic intoxication is the cause of death. In experiments made on

dogs it was found that urine might flow from a divided ureter into the peritoneum without injury to the animal's health, provided it was permitted to drain away; if, on the other hand, no escape were provided for it, it was absorbed by the peritoneum and produced uræmic intoxication. Rose mentions a case in which the patient, a young boy, showed marked symptoms of uræmia following intraperitoneal rupture of the bladder; he recovered after laparotomy and drainage without suture of the rent.[1]

Suture of the bladder almost invariably the correct treatment.

More than one hundred years ago Benjamin Bell proposed suture of the bladder for rupture. Nearly one hundred years ago Blundell of Guy's Hospital wrote, "Should the bladder give way in the peritoneal sack, why should we not lay open the abdomen, tie up the bladder, discharge the urine, and wash out the peritoneum thoroughly by an injection of warm water?" Why not indeed? But no one made the attempt till first Mr Willett and then Mr Heath performed the operation, both unsuccessfully. Shortly afterwards Macormac published his two cases. With the exception of a few cases, those in which special circumstances forbid it, the treatment consists in opening the peritoneal cavity as soon as the diagnosis is made, and suturing the rent in the bladder wall. Three points still arouse a certain amount of discussion.

Three points still under discussion.

First, should the mucous membrane be sutured, as well as the other layers? Most surgeons have contented themselves with one, or two rows of Lembert sutures passed through the muscular and peritoneal coats. In my first case, which recovered, I sutured the mucous membrane first, and then inserted two rows of Lembert sutures outside it; amongst the recorded cases I find only one—a case of Miculicz—where the surgeon sutured the mucous membrane. Catgut, of course, should be used for it, that no threads may remain to disturb the smoothness of the lining of the bladder. It is difficult not to feel that closing the mucous membrane gives additional security, but, as a matter of fact, almost all the cases that have recovered were as I have indicated, sutured only through the outer layers. The second point concerns drainage of the peritoneum. There has been some discussion regarding it, but the question will

always be much a matter of individual temperament and experience. Except in a few rare cases when the patient's condition is very good, and laparotomy is performed almost immediately after the injury, I think a tube should always be left in the pouch of Douglas; it should not be forgotten that one is dealing with a damaged peritoneum and bruised viscera. A third point on which there is some difference of opinion is the practice of tying in a catheter at the end of the operation to prevent leakage while the sutured rent is healing. From a study of the recorded cases I incline to think that no instrument should be tied in, but that a catheter should be passed once every two to four hours for the first day or two days. In every case one should be passed at the end of the operation, and the surgeon may often be able to satisfy himself how well his suturing has closed the rent; in one case at the close of the operation I drew off 4 oz., and in the other nearly 10 oz. of blood-stained urine. I append a few short notes of the two cases I have treated.

Notes of two cases.

W. F., age 33, vanman, admitted to the Royal Infirmary, Edinburgh, on June 6th, 1901. About 4 P.M. fell off his van, which passed over the lower part of his abdomen. Had urinated two hours previously. Was slightly intoxicated. Was asked to pass water, but failed; stated that, as the cart passed over his belly, urine squirted from his penis. Dr Fleming, the house surgeon, passed a rubber catheter easily, and drew off four ounces of bright red bloody urine. He suspected rupture of the bladder. I saw the patient three hours after the accident. No collapse. Abdominal respiratory movement chiefly in the upper part of the abdomen. Swelling in the right part of the hypogastric and umbilical region, markedly tender on pressure, dull on percussion, but no appearance as of a greatly distended bladder. Injected 12 oz. of hot sterile water; half of it returned in a feeble stream, ebbing with the expiratory movement in a marked fashion. No fracture of the pelvis. Incision above the pubes; no extraperitoneal rupture. Enlarged the incision upwards, and opened the peritoneum; bloody urine gushed out. Found a vertical, fairly clean-cut rent 3 to 4 inches long in the posterior superior surface of the bladder. Stitched the mucous membrane separately, and inserted two rows of Lembert sutures

Lépine divides primary hæmatomyelias into those caused by traumatism, those produced by sudden removal of atmospheric pressure, and those which are spontaneous. Those cases in which the hæmorrhage has been definitely ascertained to be spontaneous are certainly few in number, and the majority of the cases quoted as primary hæmatomyelia, apart from those due to traumatism and the sudden removal of excessive atmospheric pressure (caisson disease), will not stand the test of critical examination.

Of 126 cases of hæmatomyelia (other than those due to caisson disease), in which *post-mortem* examinations were made, Lépine finds that 55 were traumatic, 26 were due to secondary causes, such as myelitis, softening and tumour; and that 45 were spontaneous.

Of the spontaneous forms 10 were due to passive congestion, 10 to ascertained vascular lesions, such as atheroma, fatty degeneration; 9 to blood diseases, and the remaining 16 to no appreciable cause.

Among the causes producing venous congestion are mentioned—lifting of heavy weights, straining at stool, whooping-cough, epileptic convulsions, strychnine poisoning, tetanus (in one case it is noteworthy that the hæmorrhage had occurred into a glioma which had previously been latent), arrest of menstruation, hæmorrhoidal lesions, the approach of parturition, various excesses, exposure to severe cold, mental shock, and working in a position calculated to cause stasis.

Among the blood diseases purpura, scurvy, and pernicious anæmia are mentioned, the last named disease being responsible for 7 out of 10 cases.

Among the vascular diseases atheroma is the most important, especially when associated with alcoholism. Miliary aneurism is practically non-existent. Thrombosis and syphilis are also causes, and there is also a vascular fragility leading to no detectable change in the vessels and otherwise unexplained.

The following case is a striking example of the need for a careful and exhaustive examination of the hæmorrhagic area in any given case before the opinion is expressed that a hæmorrhage is or is not primary, as it well illustrates the ease with which one may overlook a grave organic lesion, the true

source of the hæmorrhage, and which had given rise to no indication whatever of its presence during life. It is also of interest as showing that the criterion usually given as diagnostic of a primary hæmorrhage, namely, the absolute suddenness of the onset of symptoms, is one which cannot altogether be relied upon, even when fulminating hæmorrhagic myelitis and hæmorrhage into the membranes of the cord are excluded. It is also of further interest clinically from the effect which the hæmorrhage had in inducing premature labour, and in modifying the character of that labour, and from the light which it throws upon the nervous mechanism of parturition.

Mrs. M., aged 31, a hawker, was admitted to Ward 27 of the Royal Infirmary on 1st November 1901, and examined on the following day. She complained of paralysis of her lower limbs, and some weakness of her right arm. (The details of her family history need not be quoted, as they show no indication of any special hereditary tendency.) The patient's occupation necessitated her being much exposed to all weathers, as she had either to stand out-of-doors selling fruit, or to carry a heavy pack until she had earned sufficient money to pay for her food. She has had seven children, three of whom are alive, the others having died of whooping-cough, pneumonia, and one accidentally. She always suffered much during her pregnancies, with pain in the back during the first three months. She is now pregnant, and has vomited since the beginning, and lost much weight.

Present illness.—On Thursday, 31st October, about 9 A.M., during the act of vomiting, she felt something twist round and tear and give way on the right side at the level of the waist. She immediately fell on the floor, with intense pain shooting all over the body, and a sensation of severe vertigo. Her arms and legs shook spasmodically, and then, almost immediately, both legs and the right arm became paralysed. The paralysis of the right arm lasted only two hours. She was seen at 10·30 by Dr Hardie, of the Cowgate Dispensary. He found the arms very painful, but not paralysed. He gave her a hypodermic injection of morphia which relieved her considerably.

On Friday, 1st November, pain was felt all over the body, especially between the shoulders, and vomiting continued all day. Patient was admitted at 9 P.M. of the same day to the

Infirmary, in a very collapsed condition and constantly retching.

On examination it was found that there was complete anæsthesia of the skin of the legs and trunk as high as a line beginning 2½ inches above the tip of the xyphisternum, and extending through the lower borders of the areola of the nipples to the level of the 7th dorsal spine. Her right hand and arm were still weak (she has always been left-handed, and the right hand has always been the weaker of the two), both legs and feet were œdematous. The left knee jerk was totally lost, the right was still present. There was no ankle-clonus. On both sides the plantar reflex was present, but very slight, with dorsi-flexion of the toes. The pupils were small, and she was rather drowsy. She had not passed water since Thursday morning, and the bladder was greatly distended. After the urine had been withdrawn with a catheter the uterus was found to reach within 1½ inches of the umbilicus. She supposed that she was 5½ months pregnant. The bowels had not moved since Thursday morning. The anus was projecting somewhat, and the sphincter quite lax. On further examination it was found that there was complete loss of perception of touch, pain, and differences of temperature in the lower extremities and the trunk below the line already indicated. On the right side this line was fairly horizontal, but on the left it sank as low as the 12th rib (Fig. 1). There was no zone of hyperæsthesia above this line, but a definite area, 1½ inches broad, in which she sometimes said she felt, and at other times not. There was complete paralysis of voluntary movement in both lower limbs, and in the abdominal muscles. There was profuse perspiration. Swallowing was normal, but the breathing was difficult owing to the great flatulent distension of the abdomen which was present. There was

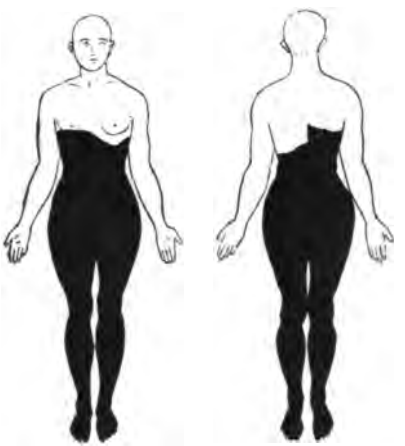

FIG. 1.
Area of Anæsthesia (black).

tenderness on percussion over the 6th and 7th dorsal spine.

Nov. 3.—Restless night. Vomited several times. Urine drawn off at 5 A.M. Some peptonised milk was given and retained. The superficial and deep reflexes remained as before. The area of anæsthesia unchanged. Slight tingling in the right arm. Stiffness and pain in the back and side of the neck and between the scapulæ. An enema given in the morning was returned unchanged. Half an ounce of castor oil given in the evening.

Nov. 4.—Upper limit of anæsthesia appeared slightly lower. The accuracy of this observation is doubtful owing to uncertainty of patient's answers. Much hiccough. Dyspnœa from upward displacement of diaphragm by flatus. Bowels moved unconsciously three times.

Nov. 5.—Retention of urine continues. Extreme gaseous distension of abdomen. Enema in morning was returned. Knee jerks now both absent. Plantar reflexes only to be elicited by strong stimulation—extensor response. An enema of asafœtida was ordered, and charcoal in teaspoonful doses relieved the abdominal distension. In the afternoon the patient complained of feeling very cold. Her skin was covered with a profuse clammy perspiration. There was great restlessness in the hands and arms, the tendons on the back of the hand constantly twitching. She complained of a feeling of electricity running down her arms, and also of a sensation of itching in the skin. Pulse extremely feeble, 120 per minute. Some whisky was administered in hot water.

Nov. 6.—Patient somewhat better. Had slept somewhat during night. Had vomited after taking castor oil. Muscular restlessness less. Retching continues, but patient can breathe more easily when propped up in bed. Pulse somewhat stronger. Knee reflexes quite gone. Albumen 1 gr. per oz.

Nov. 7.—General improvement. Breathing easier. Perspiration less. Right hand and arm still tingle. Pain between shoulders, but neck and left arm are better. Sickness stopped. P. 96. R. 24. Albumen as before. At night continuous hiccough. Thumb of left hand became adducted and drawn across palm twice, remaining rigid for a short time. P. 106.

Nov. 8.—Area of anæsthesia appears to have descended a little. Bed-sore developed over sacrum. Bowels still obstinately constipated.

Nov. 9.—Hiccough gone. Abdomen less distended. Vomiting gone. Slept better.

Nov. 10.—Slept well. Hiccough returned. Œdema of feet less. Bed-sore over sacrum increased in size.

Nov. 12.—Began to pass urine involuntarily. Hands weaker; unable to lift anything easily. Neck stiff on left side. Shoulder painful.

Nov. 13.—Both knee jerks have reappeared.

Nov. 14.—Hands very weak. Cannot shut either, or separate fingers, or flex or extend wrists. Cannot touch ring or little finger with thumb of either hand. Extension of wrist less impaired than flexion. Pupils react normally to light; are normal in size.

Nov. 15.—Both knee jerks distinctly present. These are readily exhausted on repeated tapping. Plantar reflexes present. Patient states that she occasionally feels a quiver down her legs like electricity. Hands somewhat stronger.

Nov. 17.—Improvement in hands continues. Area of anæsthesia noted to be slightly lower. On the inner side of both arms in front and behind, and just below the internal condyle, an area two inches long and half an inch broad, where patient cannot differentiate between heat and cold and pricking.

Nov. 17.—Another bed-sore over great trochanter.

Nov. 20-26.—Patient's condition remained much the same, with some cough and perspiration, and increase of œdema on legs and skin of abdomen. Plantar reflexes show dorsiflexion.

Nov. 27.—Fœtal movements felt (by the clinical clerk).

Nov. 28.—Patient's hands much recovered. Can touch little finger with thumb.

Dec. 1.—Bronchitis. Great difficulty in bringing up expectoration.

Dec. 1-7.—Bronchitis became more severe; caused great breathlessness, feeling of suffocation, and sleeplessness.

Dec. 11.—Temperature 103. Cough worse. Much weaker, and very depressed.

Dec. 13.—30 mms. of nepenthe produced sleep and relieved cough.

Dec. 14.—About 4 A.M. this morning, when nurse had occasion to change the sheets, she noticed a gush of water coming from the vagina, and immediately summoned the house physician, Dr Wedderburn. On his arrival he found a fœtus born, all except the head. Patient had felt no pains, and was not aware that she was in labour until she was informed of the fact. A dose of ergotin was injected into the gluteal muscles. The head of the fœtus was delivered by Dr Wedderburn, who then found that the breech of another fœtus with the membranes intact was presenting. The uterus could be felt above the pubis firmly contracted as if empty—the fœtus probably lying by this time in the vagina. It was expelled by suprapubic pressure, aided by traction from below. There was little

or no hæmorrhage. Patient felt nothing, and did not aid expulsion by any voluntary effort. Both fœtuses were born dead. They appeared to be about the sixth or seventh month, and were well formed. The placenta came away intact with the second fœtus.

The genitalia were thoroughly sponged, and the vagina douched with weak corrosive solution. Special precautions were necessary owing to the fact that one sloughing bed-sore was present over the sacrum not far from the anus. The parts were powdered with boracic acid, and 30 minims of nepenthe given by the mouth.

Dec. 16.—Patient very well, considering her experiences. Can lie back in bed better now. Cough still troublesome.

Dec. 18.—Patient looks wearied; is not so cheerful as usual. Face more drawn and thin. Bed-sores becoming rapidly worse in spite of constant careful attention. Knee jerks and plantar reflexes could not be elicited. Slight involuntary jerkings of right thigh noticed.

Dec. 20.—Bronchitis worse. Expectoration profuse; brought up with great difficulty. Patient sits up and leans forward on her elbows. Cannot be persuaded to rest in any other position. Bed-sores threatening on the heels. Temperature has risen to 101°.

Dec. 28.—Patient very weak. Cannot breathe comfortably except when sitting up and leaning forward. In this position she supports herself on her elbows, and there are bed-sores developing on both; also on the heels. The temperature remains at 101°. Pulse very feeble. No difference in line of anæsthesia.

Jan. 3.—Gradually weaker. Frequent attacks of breathlessness, but on the whole the breathing is easier. Cough less troublesome. Bed-sores increasing in area and depth.

Jan. 6.—After a period of increasing feebleness, with mild delirium for several days, the patient gradually sank, and died about 1 P.M.

The *post-mortem* examination, which was limited to the spinal cord, revealed a high degree of thrombosis and dilatation of the vessels in the pia mater on the posterior aspect of the cord in the dorsal region. Throughout the whole of the dorsal region the cord was of a soft consistence, and somewhat darker in colour than normally. At one or two points in the upper dorsal and lower cervical regions what appeared to be a small extravasation of blood projected beneath the pia in the posterior columns. On section of the cord, after it had been hardened with 10 per cent. formaline, a tubular

hæmorrhage was found throughout a great length of the cord, extending from the sixth cervical segment to the first lumbar, but presenting very different features at different levels. In the mid-dorsal region the hæmorrhage occupied nearly the whole of the interior of the cord, being covered merely by a thin layer of white matter. The hæmorrhage was of a rusty colour in parts. In the lower half of the dorsal region the hæmorrhage showed in its interior a peculiar tubular structure of small size, capable of admitting a fine pin. This structure was more or less circular in outline, had pale, somewhat thiek walls, and it appeared to contain blood. This tubular structure persisted to the lower end of the dorsal region; but as successive sections were made from above downwards, the surrounding hæmorrhage gradually diminished, and disappeared at a higher level than this tubular structure itself. In the cervical and upper dorsal regions the hæmorrhage became somewhat rapidly lessened in size and limited entirely to the grey matter. In the upper dorsal and eighth cervical segments it occupied the anterior and posterior horns and the central grey matter, having somewhat the outline of a capital H. At the level of the 7th cervical the hæmorrhage became limited to the posterior cornua alone. At the 5th cervical segment, on the posterior aspect of the left side of the cord, a small tumour-like mass was found, which extended from the pia mater inwards, nearly to the central canal. It was independent of the hæmorrhage above described, was very vascular, and of a yellowish appearance in the centre (Plate I., Fig. 1).

On making microscopic sections at various levels the hæmorrhagic nature of the lesion was quite apparent. In the mid-dorsal region the tissue of the cord was almost completely, especially in its anterior portion, torn up by the hæmorrhage. The vessels which persisted were engorged with blood, and surrounded with numerous round cells. In the lower dorsal region the fine tubular structure already referred to became evident in the midst of the hæmorrhage. . It was situated behind the central canal, for the most part in the anterior portion of the posterior column, partly in the mesial plane, partly somewhat to one side. The tube had walls of condensed neuroglial tissue, which were fairly vascular, being occupied by numerous small capillaries. An extensive series of sections failed to reveal any endothelial lining. At its upper extremity the tube became converted into a solid cord. It gradually passed forwards from the posterior column into one posterior cornu somewhat to one side of the mesial plane, and could be traced upwards until it came into contact with the neuroglia of the wall of the central canal. The lower end of the tube was also closed, but

terminated in the posterior columns, and had no nearer relation to the central canal. The source of the hæmorrhage into this tube was found in a rupture of its wall, and a communication with the hæmorrhagic area outside. A careful examination seemed to indicate that the hæmorrhage had arisen outside this tube, and had burst through its wall. In addition to this structure there was found in the mid-dorsal region two small angio-gliomatous masses, partly connected with the pia mater, and partly involving the white matter underneath. The vessels of this tumour were much dilated, and had very thin walls. Further, there were scattered throughout the cord, in parts near to, but not destroyed by, the hæmorrhage, several small areas in which the vessels were massed in close proximity to each other, but with very little other tissue between. These were evidently minute angio-gliomata. Similar masses also appeared to be situated in the midst of the hæmorrhage, where this had not so completely torn up the tissue. The source of the large tubular hæmorrhage appears to have been one or more of these very dilated vessels. The tumour in the fifth cervical region of the cord had a similar structure, but with much larger vessels—apparently dilated veins as well as dilated capillaries. This tumour had apparently begun to degenerate in its centre, but no hæmorrhage had taken place into it (Plates I. and II., Figs. 2 *et seq.*).

In the cerebellum there was a small angio-gliomatous tumour similar to that just described, and situated in the left lateral lobe.

With regard to the nature of the tubular structure found in the posterior columns, it appears certain that this was in no way formed out of the hæmorrhage, but that it anti-dated it, and was really due to mal-formation of the central canal, such as is found in hydromyelia. Such tubular structures are frequently found in spinal hæmorrhage, and they probably point to imperfect vascular development being the cause of the hæmorrhage.

Resumé of the principal symptoms in the case.—Onset at fifth month of pregnancy, during an act of vomiting, of sudden pain in the back and trunk, with paralysis of the lower limbs and trunk muscles, paralytic retention of urine, constipation, and great dyspnœa; sensation absolutely lost below xiphi-sternum; paralysis flaccid during rest of life; loss of left, persistence of right knee jerk; extensor response to tickling sole; disappearance of deep reflexes after six days and slight reappearance of them ten days later; slight temporary weakness of both hands; rapid formation of bed-sores; painless

and unconscious birth of twins at seventh month; death from bronchitis and exhaustion.

We see from the comparison of the above with the *post-mortem* appearances that the hæmorrhage was not primary, but was due to a lesion already existing in the cord, but one which had given rise to no symptom—apart from the sickness of her pregnancy the patient having complained of nothing. The site of the small tumours was such that the main motor and sensory paths were not interfered with materially, at least to a degree capable of attracting the attention of a perhaps not very observant patient. It was obvious that the dilatation and thinning of the walls of the vessels in the grey matter had developed to a considerable extent before the rupture came, and it will be seen also that in such an elongated hæmorrhage it would have been easy to overlook small neoplasms that were present in part of its length, and thus to regard the hæmorrhage as being spontaneous.

The nature of the paralysis and the deep and superficial reflexes is of interest. The paralysis of the muscles of the abdomen, the anus, and of the lower limbs was throughout of a flaccid nature, although the lumbo-sacral cord was beneath the level of the hæmorrhage. The plantar response was extensor (on one occasion doubtfully flexor), and although the cord was not completely cut across, the deep reflexes, within a week of the onset, disappeared for ten days and then reappeared, although they were very feeble. The temporary paralysis of the hand muscles was regarded as probably due to an upward extension of the hæmorrhage into the first dorsal and eighth cervical segment, and their recovery to absorption of part of the blood. It was interesting to note that the flexors were more paralysed than the extensors—a further support of the view that the flexor centre is lower than the extensor.

It was very remarkable how completely unconscious the labour was. The patient in no way voluntarily assisted in the process. She felt no pains, and was quite unaware of its occurrence until she was shown the fœtuses.

The occurrence of parturition in cases of anæsthesia and paraplegia is so rare that I may be allowed to refer to the paper of Dr Amand Routh, published in the *London Obstetrical Transactions* for 1897.

Dr Routh describes a case of a pregnant woman with paraplegia from injury to the dorsal region of the cord, in whom labour commenced at the normal period and progressed in an approximately normal manner, but without sensation of pain, indeed almost without any sensation whatever. He refers to several similar cases.

Case 1, described by Ollivier in the *Traité de la Moelle Epinière*, 2nd ed., 1827, p. 784, where a young woman of 22 was seized with complete paraplegia towards the end of her second pregnancy. Labour set in without warning and without pain. The woman was only made conscious of labour by the emptying of the abdomen and the cries of the child. She died ten days afterwards, and at the autopsy the spinal cord opposite the fourth dorsal vertebra was found compressed by hydatids.

Case 2, by Friedrich und Hermann Nasse (*Untersuchungen zur Physiologie und Pathologie*, Bonn, 1835, p. 268), in which complete paraplegia followed fracture at the level of the third and fourth dorsal vertebræ, with three days later a regular parturition without pain.

Case 3, Bernicke's. (Bernicke, Fritz, "Complication der Geburt mit Paraplegie und Anästhesie der unteren Korperhalfte," *Zeitschr. für Geburtshülfe und Gynäkologie*, Band 1, p. 28.) A woman of 28 with disease at the level of the seventh dorsal vertebra, followed by motor and sensory paraplegia as high as the umbilicus. Parturition was almost painless.

Case 4, Scanzoni's. (*Lehrbuch der Geburtshilfe*, Band III, p. 500, 1851.) Labour, almost normal, in a woman who had complete paraplegia, apparently from myelitis.

Case 5, Paget's. (Quoted by Sir James Simpson.) Paraplegia with loss of sensation and motion below umbilicus. Absence of reflexes. Labour at full time quite unconscious.

Case 6, Brachet's. (Brachet, *Recherches*, 2nd edit., Paris, 1837, pp. 199 and 313.) Apparently one of lesion in lumbar region. Loss of sensation as high as pubes. Labour began at full time, but the head merely entered the upper aperture of pelvis, and was only delivered with the aid of forceps.

Dr Routh's conclusions from these cases are that if the lesion is in the lumbar region the uterus may begin the labour automatically, but that it cannot complete it; that if

the lesion is above the lumbar region the act can be completed, thus showing that the reflex mechanism in the lumbo-sacral region is sufficient of itself without any voluntary assistance. The case here recorded supports the latter of these conclusions. It also shows that the sensory path from the uterus enters the cord in the lumbo-sacral (or possibly in the lower dorsal) region.

DESCRIPTION OF FIGURES.

Fig. 1. Sections of cord at various levels to show the distribution of the hæmorrhage; and one of the angiogliomatous tumours.
(*a*) Fifth cervical segment, showing tumour (*t*).
(*b*) Seventh cervical segment, with hæmorrhage in both posterior cornua.
(*c*) First dorsal segment showing the hæmorrhage in and around the grey matter.
(*d*) Second and (*e*) third dorsal segments, showing hæmorrhage.
(*f*) Fourth dorsal segment showing hæmorrhage occupying almost the whole of the transverse section of the cord.
(*g*) Sixth segment showing hæmorrhage, with the enclosed tube (the white ring) itself containing blood.
(*h*) Eighth dorsal segment, with clot.
(*i*) Second lumbar segment free from hæmorrhage.

Fig. 2. Angioglioma from posterior columns of fifth cervical segment (fig. 1, *a*). Empty spaces are dilated vessels.

Fig. 3. Fourth dorsal segment, showing the cord torn up by the hæmorrhage, vessels filled with thrombi in the substance and in the membranes of the cord. The oval laminated area to the left of the middle line is the upper end of the tubular structure found in the lower dorsal region.

Fig. 4. Sixth dorsal segment. Grey matter, especially anterior cornua on left side torn up by hæmorrhage. Tubular structure ruptured and being entered by hæmorrhage.

Fig. 5. Ninth dorsal segment with two angiogliomata in membranes. Dilated tubule (from which blood has been washed out) behind the central canal.

Fig. 6. Tenth dorsal segment, showing the dilated tubular structure with its thickened walls, situated in the anterior part of the posterior columns and immediately behind the central canal.

Fig. 7. First lumbar segment, showing the closed lower end of the tube in the front part of the posterior columns, slightly to one side of the middle line.

EUCAIN AS A LOCAL ANÆSTHETIC, WITH ILLUSTRATIVE CASES

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THE usefulness of eucain as a local anæsthetic, although fully recognised in many quarters, is not sufficiently appreciated in general practice. The following experiences will show of how

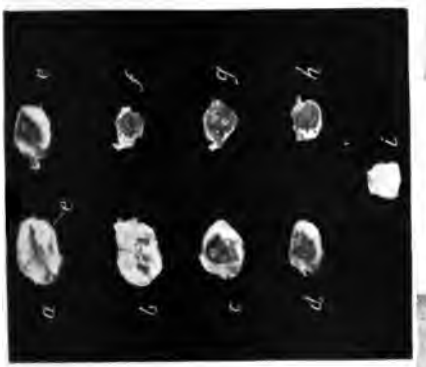

FIG. 1.

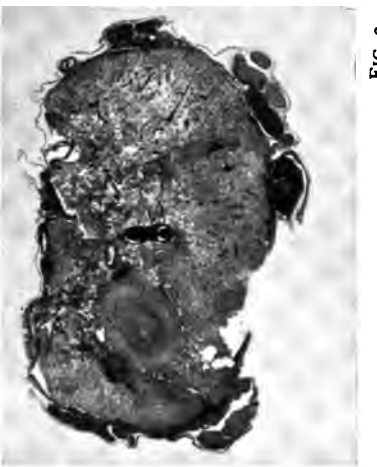

FIG. 3.

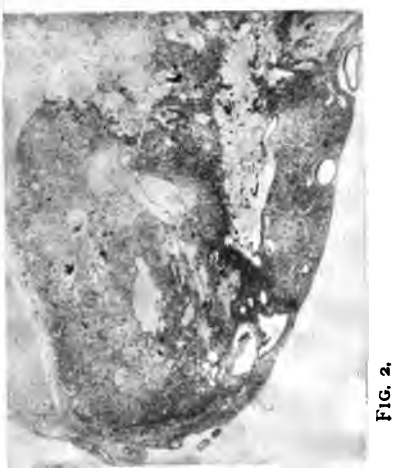

FIG. 2.

PLATE I.—TO ILLUSTRATE DR BRUCE'S PAPER.

FIG. 5.

FIG. 7.

FIG. 4.

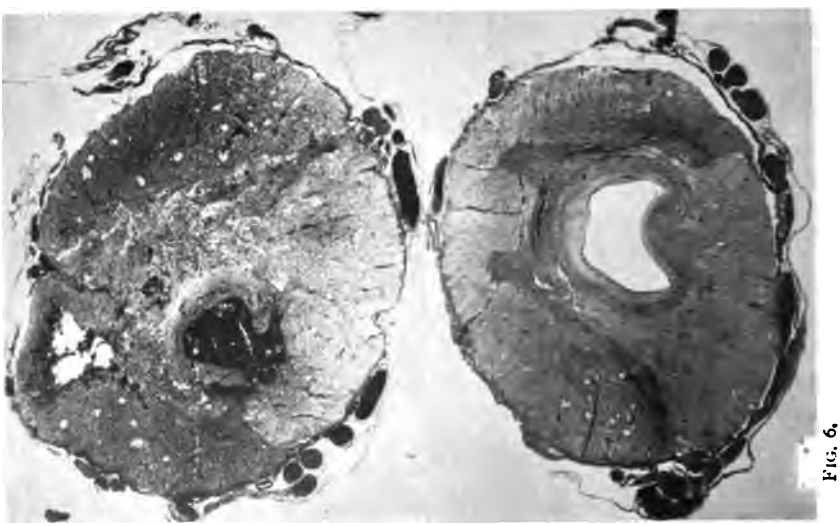

FIG. 6.

TO ILLUSTRATE DR BRUCE'S PAPER.

great value it may be to general practitioners; especially to those who are isolated in country districts, and who have often to carry out minor operations singlehanded.

Its great advantages and the number of cases where it can be effectively employed were first proved to me in the South African war, where a fellow civil-surgeon and I were led to use it extensively by the fact that our superior officers were very averse to the use of chloroform. This objection resulted in men being sent to the base, and off active service, because of ailments which operation and a short stay in hospital would have obviated.

We procured some eucain and set to work without the general anæsthetic. Our first cases were three or four varicoceles. The men were to be sent down country for garrison duty. We had most encouraging results. We were pleased; the men were pleased; our P.M.O. was delighted! The only pain felt by the patient during the operation was in the renal region while the veins were being tied—there was none during the process of exposure.

The next case was a large sublingual dermoid cyst. Pain was felt during the separation of its deeper posterior part, but "rather stand that than have chloroform," said "Tommy."

Amongst other cases we had varicose veins, and, amongst minor deformities, hammer toes, where resection of the interphalangeal joints and tenotomy of the *extensor* tendons were done—all quite painlessly. The other patients in the ward derived much amusement, the subject of the operation being also subject to considerable banter, a state of affairs quite the reverse of that when chloroform was being used.

On taking up work at home again, I extended the use of eucain to all sorts of cases. I have used it in herniotomy, where the patient was a cross old lady, whose only complaint was that she was being kept so long out of bed. The condition at the end of operation in such cases is not to be compared with the usual more or less collapsed condition following general anæsthesia. With eucain the tendency to after-sickness is avoided, the patient is able to take nourishment immediately, and usually has no pain for a few hours. In a radical cure it is more difficult to produce absolute anæsthesia,

because one has not the definite tumour around which to inject the eucain. It can be done, however, quite successfully. I used it in a case where the patient was afraid of chloroform. The hernia remains cured at the end of eighteen months, in spite of rather heavy work on the part of the patient; showing that the operation can be quite thoroughly carried out.

It was not very successful in a case of removal of cervical glands. Here it was given as the patient had on a former occasion collapsed under chloroform. Perhaps there are too many important structures in the neck to admit of the common use of a local anæsthetic there, yet Kocher's work on thyroidectomy under cocain must be remembered.

Similar want of success has occasionally attended its use in removal of growths from the face, except where the lips were concerned. This may be due to the difficulty in reaching each of the numerous interlacing nerves with the solution, where the part is so vascular and the lymph-drainage so free.

Eucain has been extremely useful in cases of varicocele. A sickening pain in the loin of the side operated on was felt in the earlier cases. In the latter cases, where I have not attempted to anæsthetise the deeper parts (the cord and its coverings) until the skin and subjacent fascia have been divided, this pain has been practically *nil*. In a case of castration for tubercular testicle no pain was complained of until the stitches were put in at the end of the operation, when the anæsthesia no doubt was wearing off. In this case the lungs were rather far gone, and the use of the local anæsthetic obviated any deleterious effect on them. The skin and subcutaneous tissue of the whole of the base of the scrotum on the affected side and extending into the groin was saturated with the eucain solution before attempting to separate out the testicle. Then a quantity of the solution was injected between and beneath the immediate coverings of the cord in various places, and in a few minutes the cord was laid bare and divided in the usual manner.

This local anæsthetic is also absolutely efficient in cases of circumcision in adults. For obvious reasons it is not so applicable in children and in those who have not sufficient mental control to remain quiet during operation.

Eucain anæsthesia is perhaps most widely applicable and

useful in the surgery of the fingers and toes. Nowadays I never *recommend* a patient to have a general anæsthetic for either conservative work on or amputation of these parts. It is best to make the injections at the junction of the fingers with the hand. I have seen on one occasion sloughing follow injection into the dense tissues of the finger itself. The needle is inserted over the dorsum of the base of the proximal phalanx and pushed, just underneath the skin, to one side until it reaches nearly halfway round the finger. Its point is then protruded till the skin becomes blanched and a drop of solution injected. The needle is then withdrawn a little and protruded again so as to blanch the skin, and another drop or two injected, and so on. The skin on the other side of the dorsum is similarly anæsthetised. The needle is then, through the same puncture, pushed deeply first to one side and then to the other, and drops injected at intervals as the needle is withdrawn. One should remember the course of the vessels and nerves of the finger—roughly dorso-lateral and dorso-ventral—and try to avoid wounding them although going as near as possible to them. The palmar aspect of the finger is anæsthetised in a similar way. If the bone of the proximal phalanx is to be divided, injections should be made close to its surface. If the joints are to be opened, a drop or two injected into their cavities makes anæsthesia more certain.

Of course the part of the skin to be punctured should be disinfected, but the disinfection of the rest of the finger affected should be left till anæsthesia is established. After this preparation, removals of nails, amputations, resections, suture of tendons, removal of foreign bodies, opening whitlows, remedying deformities, etc., can be carried out quite painlessly.

I wish especially to draw attention to its usefulness in procuring thorough disinfection of crushed fingers and the like. Anæsthetise as above, then use brush, soap and water, and turpentine or spirit as if no broken skin were present. Trim off useless parts and dress. If disinfection has been thorough the dressings need not be removed until healing is completed. Weeks of delay are thus avoided, which could only otherwise be obtained by giving a general anæsthetic to allow proper cleansing.

The usual strength of solution I have employed has been

1-2 per cent., 1 per cent. is usually quite sufficient. The eucain β is dissolved in normal saline solution. By using a solution of the same osmotic pressure as the fluids in the tissues a considerable amount of early after-pain is apparently done away with.

A great point is to inject the solution in large amount. One drachm (two or three ordinary syringefuls) is quite a usual amount for an operation on a finger as above described. I have never seen any toxic action whatever, but such has very frequently followed the use of cocain even in small doses. I have heard of 15 grains of eucain being used without bad effect.

I never make use of tourniquets in such operations. If applied efficiently they are in themselves a source of excessive pain. The advantage of the longer anæsthesia gained by using a tourniquet which prevents the absorption of the anæsthetic is, to my mind, counterbalanced by this pain caused by the tourniquet. Operations suitable for eucain anæsthesia are usually quite easily finished in the time available from one injection—this I have found is from 20-30 minutes, or even longer. If not, it is a simple matter to inject more where the pain is felt.

It is most important that a suitable needle be used. This should be as fine as possible, otherwise considerable pain may be caused in introducing it. Personally, I have found the needles known as Schimmel's patent to be most convenient and humane for this purpose.

It requires a little practice before one becomes an adept in procuring anæsthesia by this method, and also anatomical knowledge of how the nerves of the part are distributed. Attention has already been drawn to the fact that it is better to inject the solution alongside a nerve rather than to inject into its substance or to transfix it; much after-pain is thus avoided. Cicatricial tissue should also be avoided, as it prevents diffusion of the solution, and is apt to slough if injection is made strongly into its substance.

A final point of no little importance is that most patients should be prevented from seeing what is being done, otherwise pain often cannot be dissociated from the use of the knife in the patient's mind. The simplest way is to lay a light towel or handkerchief over the patient's face.

OBSERVATIONS ON A CASE OF EPILEPSY TO DETERMINE THE VALUE OF THE RICHET AND TOULOUSE METHOD OF TREATMENT BY A CHLORINE-POOR DIET

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THE observations of Richet and Toulouse published in the *Comptes Rendus de l'Académie des Sciences* for the year 1899, and also the more recent observations of Balint and others, provide striking evidence as to the greater efficacy of the treatment of cases of epilepsy by bromine salts when that treatment is combined with measures directed towards limiting the amount of chlorine salts ingested with the food. In order to have the value of this method of treatment tested, a case of epilepsy was admitted to Dr Elder's ward in Leith Hospital to be observed while under the administration of large doses of sodium chloride.

The patient, J. S., male, aged 20, was admitted on March 29th, 1901. Previous to admission he had had five fits in the course of three months, while attending at the New Town Dispensary. During this period he was recommended by me to have a chlorine-poor diet, and pot. bromide was also prescribed.

On admission to Leith Hospital the patient was given ordinary diet and a placebo of compound tincture of cardamom was prescribed.

On April 3rd the estimation of chlorides in the urine was begun and this was continued daily for fifteen days. The estimation was made by Mohr's method and Table I. gives the results. From this table it is seen that the average excretion is practically normal. E. G. Klein has published estimations of chlorides made in ten cases of epilepsy. In these he found that the urine, collected in the intervals of the fits, contained a *normal or diminished* amount of chlorides, while these were increased in the urine passed immediately after the fits. On the morning of the 16th April the patient was given Henry's solution, and it will be observed that the

excretion of chlorides was almost doubled on that day. There were no fits during the fifteen days.

TABLE I.

Date.	Chlorides.	Urine.
April 3rd	10·7 grammes.	36 ounces.
„ 4th	6·8 „	60 „
„ 5th	15·9 „	51 „
„ 6th	12·8 „	46 „
„ 7th	10· „	43 „
„ 8th	lost	50 „
„ 9th	16·3 „	48 „
„ 10th	12·3 „	58 „
„ 11th	13·8 „	54 „
„ 12th	13·2 „	54 „
„ 13th	11·7 „	55 „
„ 14th	14· „	52 „
„ 15th	13·5 „	46 „
„ 16th	25· „	50 „
„ 17th	17· „	53 „
„ 18th	13·7 „	50 „
Average daily	13·7 grammes.	50·7 ounces.

During a period of 9 days beginning on 19th April, 8 grammes of sodium chloride were administered daily in divided doses, ordinary diet and ordinary table salt being used as before, *i.e.* according to appetite. The same amount of exercise was taken as on the previous estimation. During the period no fits occurred.

The following table shows that the daily excretion of chlorides was increased by 9 grammes over the average excretion in previous period, although only 8 grammes additional were being administered. The probable explanation of this surplus excretion in the urine may be that, on account of the diuresis, some chlorides were passing out in the urine that might otherwise have been excreted by the bowels or through the skin. The additional chlorides being administered were therefore not being retained.

TABLE II.

Date.	Chlorides.	Urine.
April 20th	19·5 grammes.	56 ounces.
„ 21st	21·5 „	54 „
„ 22nd	29·5 „	64 „
„ 23rd	23·5 „	52 „
„ 24th	24·3 „	42 „
„ 25th	13·7 „	52 „
„ 26th	17·4 „	68 „
„ 27th	32·3 „	80 „
„ 28th	23·1 „	69 „
Average daily	22·7 grammes.	59·6 ounces.

On the 29th April the patient had 16 grammes of sod. chloride given in divided doses. This administration was continued for five days under the same conditions as to diet and exercise as before. The patient stated that he had as much desire as ever to have salt added to his food at table. During this period no fits occurred. In the following table it will be seen that the chlorides of the urine averaged 17·9 grammes per diem more than in the first table, which represents the condition when no sodium chloride was being given in addition to that taken in the ordinary course. While the excretion had thus increased 17·9 grammes, the ingestion had increased by only 16 grammes daily. The daily average amount of urine was increased by 25 ounces over first period.

TABLE III.

Date.	Chlorides.	Urine.
May 1st	30·5 grammes.	72 ounces.
„ 2nd	30·4 „	80 „
„ 3rd	32·5 „	74 „
„ 4th	31·5 „	74 „
„ 5th	33·2 „	78 „
Average daily	31·6 grammes.	75·6 ounces.

On May 12th the patient was discharged from hospital without having had any fits during his stay. Pot. bromide

was then prescribed, but the patient returned on May 31st to the dispensary stating that he had had another fit. On this occasion I again prescribed sod. chloride, 12 grammes daily, so that the effect on the number and character of the fits might be noted under the less favourable circumstances of living at home. He began the chloride on June 1st, and on June 4th patient came to the out-patient department of the hospital under the care of his mother, who stated that her son had had three fits that morning. Two of the fits were very severe, and one eye was very much bruised. These were by far the most severe and most rapidly recurring attacks he had had. The administration of chloride was immediately stopped, and gr. xxv pot. bromid. thrice daily was prescribed instead. There were no instructions given as to diet.

On June 20th—*i.e.* sixteen days later—he had to give up his work, to which he had returned on June 6th. Between the 4th and 20th he had three fits, which were the cause of his dismissal. After this there was another on the 22nd and again one on July 3rd. He had thus had five fits in the course of one month, while taking pot. bromid. regularly, but with an unrestricted diet.

On July 3rd he received instructions as to a chlorine-poor diet. The composition of this will be referred to later. The bromide was continued as before. This treatment was continued for twenty days, and during this period only one fit occurred.

On July 23rd he began unrestricted diet once more, and had 12 grammes sod. chloride daily. The diet was continued for nine days and sod. chloride was administered for six out of the nine days. In this period he had three fits.

On August 2nd he stopped the chloride and instead had a placebo of sod. bicarb. and infusion of gentian. On this occasion he had most particular instructions as to a chlorine-poor diet. This treatment lasted for fifteen days, and the patient in the course of it had two attacks of *petit mal* on one day. No other fits occurred, and the disease had now for the first time shown itself in the slighter form.

On August 17th he resumed ordinary diet, and ceased taking medicines. Severe fits occurred on the 19th, 24th, and 26th August, and he again returned to the out-patient depart-

ment. He was put on the treatment which he had given up on the 17th, viz.: chlorine-poor diet with a placebo of inf. gent. and sod. bicarb. This treatment continued for twenty-six days, during which time two fits occurred and four attacks of *petit mal*. Three days after stopping the treatment he was admitted to the Parish Hospital. He had just had a severe fit on that day. Table IV. represents the condition during the entire period of 134 days, during which he was under observation while living at home.

It is unfortunate that sod. chloride was administered on only twelve of these days, but the great number and severity of the fits which occurred on each of the two periods on which it was given, compelled me to give up the administration for the time.

From the table it will be seen that there are well-marked differences in the proportion of fits to the number of days in the various periods.

TABLE IV.

	Days.	Fits.	Ratio of fits to days.
Chlorine rich or ordinary diet with 12 grammes sod. chloride,	12	6	1:2
Ordinary diet and no medicine, .	13	4	1:3¼
Chlorine poor diet and placebo, .	41	2 grand mal, 6 petit mal	1:5⅛
Ordinary diet and bromide, . .	48	6	1:8
Chlorine poor diet and bromide, .	20	1	1:20

From the above table it is seen (1) that fits occurred most frequently when the patient was having a chlorine rich diet combined with the administration of 12 grammes sod. chloride daily.

The table also shows (2) that fewest fits occurred in the period when bromide was being given simultaneously with a chlorine poor diet.

It is also to be observed (3) that during the period in which a chlorine poor diet was being given the fits chiefly took the form of *petit mal*.

While observing that these various facts point towards the harmfulness of the administration of chlorine to epileptics, it

must be remembered that the patient while in hospital for six weeks had no fits, even when 16 grammes sod. chloride were being given daily, an example of the benefit which epileptics generally receive from the rest and regime of a hospital. Another difference noticed in the effect of the administration of sodium chloride to this patient when in the hospital on the one hand, and under ordinary home circumstances on the other, must be mentioned, as it gives a possible explanation of the occurrence of fits in the latter period and not in the former. While in hospital the patient was never nauseated by taking the salt, and he took eagerly additional salt as a condiment at meals. His appetite steadily improved till he was eating as much as one having daily exercise in a bracing air. On the other hand, when the patient was living at home, he on one occasion poured away the medicine (sod. chloride) as he thought it was lessening his appetite and causing nausea, vomiting and diarrhœa. When this occurred he was taking 4 grammes less of sod. chloride daily than he had taken in hospital with comfort.

It is difficult to explain the different effects obtained on the stomach and bowels and also on the number of fits. Already it has been shown that when the patient was in hospital the elimination of chlorides was satisfactory and that any increased ingestion of chlorides only caused a still greater excretion. In these circumstances it is not surprising that the patient was always eager to have a good supply of table salt with his meals. Unfortunately the condition of elimination of chlorides after the patient's discharge could not be ascertained.

Defective elimination must therefore remain as a theoretical explanation of the nausea and other bad effects, after the patient's discharge from hospital.

E. G. Klein's paper (already quoted) indicates that defective elimination of chlorides does to some extent take place. In 10 cases he had the urine collected in the intervals of the fits. In 6 of these the chlorides were *normal* and 4 *diminished.* Chlorides were present *in excess* in 14 out of 21 cases examined after a convulsion. Further evidence is of course required to confirm Klein's results, but I am not aware that they have been disputed.

A brief reference must be made to the subject of diet, as it differed in the present case from the one recommended by Richet and Toulouse, who gave weighed and measured quantities of a few selected foods. The patient's appetite may safely be the deciding factor as to the amount of food taken, so long as the correct foods are in the dietary.

In the present case there were, first of all, certain articles which the patient was absolutely *forbidden to take*, such as smoked ham, bacon, salt herrings, all potted and tinned meats, sardines. Oysters and caviare are also highly saline, but it was unnecessary to warn the patient regarding these, as he was unlikely to indulge in them. Secondly, there were foods which he was *allowed to take according to appetite* provided they were not cooked with common salt, or eaten with it as a condiment. These foods formed the chief part of the diet. Included in this division were beef, mutton, biscuits, cake, butter (fresh), sugar, yolk of egg (almost all the chlorine of the egg is in the white); milk, porridge, potato, turnip, onion, carrot, asparagus; fish, especially turbot, John Dory, whiting. The cooking salt used in this case was sod. phosphate, but sod. bromide was used by Balint. Thirdly, some foods were to be *taken in limited quantities.* Bread (unless made specially with sod. phosphate instead of common salt), white of egg, herring, cabbage, celery, spinach, cheese. This classification is founded on analyses and information contained in Hutchison's "Food and the Principles of Dietetics," and in Burney Yeo's "Food in Health and Disease."

It only remains to be said that in a chlorine-poor diet a substitute for common salt should be used on all occasions for cooking and as a table salt. In the present case sodium phosphate was the salt used.

In conclusion I desire to thank Dr William Elder, Physician to Leith Hospital, for permission to have the patient in his ward during a considerable period of the observation. I have also pleasure in acknowledging help obtained on various matters from Dr J. J. Graham Brown and Dr Langwill.

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FIFTY YEARS' SURGERY IN THE ROYAL INFIRMARY, EDINBURGH

A Short Review

By E. SCOTT CARMICHAEL, M.B., F.R.C.S.Ed.,
Surgical Registrar to the Infirmary

THE high position which the Infirmary, both in the old and in its present new buildings, has for long held amongst British hospitals as a teaching school, and its associations with many of the best teachers of clinical medicine and surgery, affords me an excuse for presenting a short review of the surgical practice in the hospital during the last fifty years.

During this period such masters as Syme and Lister carried on extensive surgical work in the hospital, and a few remarks on the surgery of their time and its advances up to the present date, as gathered from the old hospital records at present in the Infirmary, may be of some interest.

I propose, therefore, to review very shortly the surgical work carried on during this period, by comparing the records at intervals of a few years.

1850-51.

During these two years there were three acting surgeons in the Infirmary: Professor Syme, Dr James Dunsmure, Dr Richard J. Mackenzie.

In one statistical year 1349 surgical cases were treated in the hospital, 486 of which were under the charge of Mr Syme.

Of these 486 cases under surgical treatment in Mr Syme's wards, 75 were operated upon. The kind of operations performed were as follows. The most common operations performed are given in their order of frequency out of the total number, 75. For:—

Fistula in ano	16
Hydrocele or hæmatocele (tapping) . .	6
Lithotomy for vesical calculus . . .	5
Perineal section for stricture . . .	5

Hæmorrhoids	4
Carcinoma of mamma	3
	39

More than half the total operations performed were for the relief of these six conditions.

The remaining operations were performed for conditions such as abscess, wens, cancer of lip, ganglion, exostosis, tumour of parotid, onychia, etc., and certain amputations.

Syme's amputation, 4 (2 for diseases of ankle, 1 for injury, 1 for gangrene);
Amputation at shoulder joint, 2 (1 for dislocation of shoulder joint, 1 for fracture of humerus);
Amputation through thigh, 2 (for white swelling of knee joint);
Amputation of digits, 2 (caries 1, injury 1); = 10.

Mr Mackenzie had under his charge in one year 339 surgical cases, 47 of which were operated upon. The most common operations in his cases being:—

Fistula in ano	7
Circumcision	4
Lithotomy (perineal)	2
Necrosis of bone	3
Venereal warts	2
	18

and the following amputations:—

Amputation through thigh, 3 (disease of knee 2, injury 1);
Amputation through leg, 2 (disease of ankle 1, injury 1);
Syme's amputation, 1 (disease of tarsus);
Amputation of digits 1; = 7.

In one year Mr Syme and Mr Mackenzie had under their charge 825 surgical cases, and performed 122 operations—*i.e.* 14·7 per cent. of their surgical cases were operated upon.

In Mr Syme's cases (486) there were ten deaths, two of which occurred in operated cases, amputation at shoulder for compound fracture of humerus, and perineal lithotomy for vesical calculus.

The mortality in all surgical cases was	2·1	per cent.
„ „ operation „	2·6	„

In Mr Mackenzie's cases (339) there were nine deaths, three of which occurred in operated cases—*i.e.* amputations through

the thigh—two, and lithotomy for vesical calculus giving a mortality as follows:

In all surgical cases	.	2·6 per cent.
In operated cases .	.	6·3 „

The next period serves, as a connecting link between the surgery of the earlier days of Syme and that of the present time, for in the years 1864-1865 there were present as junior members of the surgical staff many of those who have now risen to distinguished positions in the Edinburgh Medical School.

1864-1865.

At this time the surgeons of the Infirmary were—Professor Syme, Professor James Spence, Dr John D. Gillespie, Dr Patrick H. Watson.

Assistant Surgeons—Thomas Annandale, Joseph Bell.

During these years the following acted as House Surgeons—John Chiene, Francis Cadell, A. G. Miller, J. J. Wood.

1843 surgical cases were treated in the hospital.

During the year 1865 Mr Syme performed 208 operations.

The more frequent operations were performed for the following conditions:—

Fistula in ano . . .	18
Hydrocele or hæmatocele . .	16
Club-foot (tenotomy) . .	12
Excision of breast (scirrhus) .	11
Lithotomy	6
Epithelioma of lip . . .	4

Besides these the following amputations and excisions were performed:—

Excision of elbow, 4 (3 for caries, 1 for osseous ankylosis, cause unstated).

Excision of wrist, 1 for caries.

Amputation of digits . . .	4	For injury.
Amputation through knee-joint . .	2	
„ „ femur . .	2	
„ „ leg . .	1	
Amputation of digits . . .	2	For disease.
Amputation through knee . .	4	
„ „ femur . .	2	
„ „ humerus .	1	
Syme's amputation . . .	2	
	20 amputations.	

The deaths in operated cases numbered 14, giving a percentage of 6·7.

During the same period Professor Spence out of 371 cases recorded as under his treatment, performed operations in 97 of these, or a percentage of 26. The following were Professor Spence's most frequent operations:—

Circumcision	10
Fistula in ano	7
Hæmorrhoids	7
Strangulated herniæ	5
Holting for stricture	5
	34

and the following amputations and excisions:—

Amputations		*Excisions*		
Digits	8	Shoulder	3	
Leg	6	Elbow	3	
Syme's	5	Wrist	1	
Femur	3			7
Forearm	3			
Shoulder	1			
Arm	1			
	27			

The deaths in operated cases numbered 18, giving a percentage of slightly over 18 per cent.

Dr Gillespie in the same year had 389 surgical cases under his charge, of which 67 were operated upon.

Strangulated herniæ	5
Fistula in ano	3
Perineal section (stricture)	3
Lithotomy	3
Hydrocele and hæmatocele	3
	17

Amputations		*Excisions*		
Through leg	6	Knee	3	
Syme's	3	Elbow	3	
Femur	3			6
Forearm	2			
Finger	2			
Arm	1			
	17			

The deaths numbered 12, giving a percentage of 17·8.

In comparing the two periods 1850 and 1865, a greater pro-

portion of surgical cases were operated upon with, at the same time, a greatly increased mortality.

During the latter period operative interference in tubercular diseases of joints seems to have been more frequent, as also relief of strangulated herniæ by dividing the seat of stricture.

1871.

During this period, which was one of the early days of antiseptics, most large operations were performed with the aid of the carbolic spray.

The following is a fairly complete list of cases operated upon by Mr Lister.

Out of 239 surgical cases, operations were performed in 88 —a very much larger percentage than in pre-antiseptic periods.

The most common operations were the following :—

Opening of abscesses . .		26
Removal of breast (scirrhus) .		9
Removal of fatty tumours . .		5
Removal of epithelioma of lip .		5
Incisions into joints . .		5
Lithotomy, hæmorrhoids .	(each)	3

The opening of abscesses included such abscesses as gluteal, psoas lumbar, abscess of neck and various other parts of the body, the treatment of which appeared in almost all cases to be incision, evacuation, and draining with lint soaked in carbolic oil.

In the cases of scirrhus, the pectoral muscles were generally divided, and the axilliary tissues removed.

The incisions into joints were generally for "chronic disease" of the joint.

The following amputations were performed :—

Amputation through thigh . .	4
Amputation at hip-joint . .	1
Syme's amputation . .	3
Amputation of digits . .	2
Amputation through arm . .	1
Amputation at shoulder . .	1

and the following excisions :—

Excision of wrist . . .	2

In addition to the above-named operations, tenotomies for club foot, plastic operations for hare-lip and cleft palate, were performed.

I pass now over a period of twenty years, a period during

which the progress of surgery did not make such great strides as during the last decade, and I shall refer to the surgical work of the whole hospital and not to that of any individual surgeon.

1891-1892.

During this year the total number of surgical cases treated in the hospital were 4360, of which 2171 were operated upon, an average in all cases of 50 per cent.

The operations most frequently performed were the following:—

Removal of simple tumours	110
Scraping of carious bone	109
Incision or drainage of abscesses	95
Removal of scirrhus of breast	43

Besides these there were 132 cataract extractions performed in the eye wards.

At this time the surgery of the abdomen was in its infancy, but it will be of interest to note what the abdominal operations performed were.

	Radical cure performed.	Deaths.
Reducible herniæ	12	2
Irreducible herniæ	7	1
Strangulated herniæ	29	10

Other operations performed on the abdomen were:—

Gastrostomy	4
Perf. gastric ulcer	1
Colotomy	11
Acute obstruction of bowels	13
Aspiration of biliary cyst	1
	30

Thus the percentage of abdominal operations performed, including herniotomy, to the total number, was 3·2 per cent.

I now pass to the years 1899-1900, a period of years marked chiefly by the advance of abdominal surgery.

1899-1900.

The total number of surgical cases treated this year in the hospital were 4786, 2862 of which were operated upon, giving an average of 59·8.

In this year the operations most frequently performed were:—

Radical cure of hernia (not including strangulation)	84
Excision of the appendix	72
Scraping of tuberculous glands	76
Excision of tuberculous glands	69
Removal of breast (for scirrhus)	55

These were the most common operations in the general surgical wards.

In the eye wards extraction of cataract was performed in 122 cases, and iridectomy in 71 cases.

During this year also the following abdominal operations were performed, those of 1891 being added for comparison:—

	1891.	1899.
For radical cure of hernia (including strangulation)	48	129
Appendicitis	0	72
Tuberculous peritonitis	0	9
Disease of stomach	2	23
Disease of pancreas, liver, gall-bladder, etc.	1	10
Other operations on the intestines (colotomy, etc.)	29	55
	80	298

In 1891, 29 out of 48 of the herniæ operated upon were for strangulation, and in 1899 only 25 out of 129 of the herniæ operated on were for strangulation.

The proportion of abdominal operations (inclusive of hernia) to other operations for this period was 10·4.

During the last two periods the incision and drainage of acute and chronic abscesses has been omitted.

In conclusion: (1) The number of operations performed relative to the number of surgical cases has steadily increased almost 50 per cent.

(2) The mortality in operated cases has decreased over all operations performed.

(3) The most frequent operation performed, exclusive of amputations or incisions of abscesses, for the period between 1850-1870, appears to have been for the relief of fistula in ano.

(4) The removal of scirrhus of the breast has always been one of the most frequent operations performed.

(5) During the last ten years abdominal operations have formed an ever-increasing percentage of the total operations performed, so that at the end of this period herniotomy and excision of the appendix are the most frequent of all operations.

(6) During this period also the removal of diseased glands,

as well as the scraping of them, contributes largely to the number of operations performed.

The following table gives a short comparison of the results obtained during the various periods:—

Year.	Surgeons.	Percentage of Operated Cases.	Mortality in Operated Cases.	Mortality in all Cases.
		Per cent.	Per cent.	Per cent.
1850-51	Mr Syme	15·4	2·6	2·1
	Mr Mackenzie	13·8	6·3	2·6
1864-65	Mr Syme	—	6·7	—
	Mr Spence	26	18	—
	Dr Gillespie	17	17·8	—
1871	Mr Lister	37	11·3	—
1891-92	Whole Hospital	50	5·4	4·9
1899-1900	Whole Hospital	59·8	5·2	5·7

The omissions in this table are due to the fact that complete records of the cases could not be obtained.

I have to thank Professor Chiene for suggesting, in the first place, the writing of this paper, and, secondly, for affording me much facility in acquiring some of the facts.

There is much more that is of great interest in the old Hospital records, but space will not permit of more than a brief survey in the present paper.

A CASE OF CHLOROMA

By L. R. SUTHERLAND, M.B.,
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THE cases of chloroma recently recorded by Dr Melville Dunlop and by Dr Byrom Bramwell have reawakened interest in this peculiar malady. Considering the rarity of the affection any contribution, however meagre, which aims at confirming, or completing the picture of the disease must have a certain value. This fact has induced me to place on record the results of the *post-mortem* examination of a case which came under observation in August 1893. At that time I was aware of the existence of the malady from having in my possession a reprint of Dr King's "Case of Chloroma," published in the *Monthly Journal of Medical Science* for August 1853, and the points of resemblance between the two cases were at once apparent.

Through the kindness of Dr James Finlayson I am enabled to furnish the following clinical summary of the case:—

Robert A., æt. 5 years and 9 months, was admitted to the Royal Hospital for Sick Children, Glasgow, under Dr Finlayson's care on the 18th of July 1893, with swellings in both temporal and pre-auricular regions; with œdema of the upper and lower eyelids on both sides; with a hard swelling in the right cheek; and with symmetrical swellings over the hard palate. These swellings had all developed in the course of two months.

Family history.—The father of the child is in delicate health. One of his sisters died of "decline." The mother and her relations are healthy.

The patient is one of a family of five. The eldest child is alive and well. The second child died, aged 8 months, from "diarrhœa." The patient is the third child. The fourth died aged over 3 years from "congestion of the lungs," while the youngest, aged 1 year and 3 months, is alive and well. There is a history of a miscarriage preceding the birth of the patient.

Previous history.—As an infant the patient suffered from "suppurating ears." These gradually ceased to discharge, and up to the end of last year the child's general health was excellent.

At New Year time, *i.e.* about 6½ months before admission, he had measles followed by whooping-cough. He never entirely regained health and strength, but was always more or less weakly, pallid and peevish.

History of present illness.—Two months before admission he suffered from diarrhœa, and about this time his mother noticed some swelling in front of both ears. The swelling was accompanied by pain, especially on the right side, extending forward in the direction of the right orbit. Deafness was noted from the time of the onset of the pain.

Shortly after the appearance of the swellings in front of the ears, similar swellings developed in both temporal regions and right cheek, and about a fortnight before admission the child complained of discomfort in the mouth. This rendered the eating of any hard food painful, but soft food, such as porridge, was readily swallowed. There was no loss of appetite. There was a tendency towards constipation.

State on admission.—The child is thin and very pallid. He weighs 2 st. 6 lb. 8 oz. There is a petechial eruption over the legs having the appearance of being due to flea-bites. His face is much swollen, giving him a rather bloated appearance. The skin, especially over the right side, has a glazed aspect. The upper and lower eyelids on both sides are œdematous, and the right lower eyelid towards the outer canthus is the seat of some infiltration. The child is unable to shut his right eye. There

are well-marked swellings in front of the external auditory meatus on both sides, and larger swellings in both temporal regions. These last seem somewhat soft centrally. The glands on both sides of the neck are enlarged, especially on the right side. The right cheek is much swollen, and a hard, slightly movable mass about the size of a small walnut is felt in its substance. Examined on its buccal aspect, a swelling the size of an almond may be seen projecting into the buccal cavity.

The lines of expression are almost lost on the right side of the face. The action of the muscles at the right angle of the mouth appears to be impaired.

Projecting from the hard palate on each side of the middle line there are small, smooth swellings. There is no evidence of ulceration of the buccal mucous membrane. The breath has a very fœtid odour.

On testing the patient's hearing it is found he can hear the ticking of a watch three inches removed from the right ear and two inches removed from the left ear.

Circulatory system.—The area of cardiac dulness is normal. The heart sounds are pure. The pulse is 124 and slightly irregular. The temperature on admission, 100·4°.

Respiratory system.—The respirations number 28. Over the left apex in front there is rather less resonance than over the right apex. Moist râles are also audible over the left upper front. Occasional moist râles are heard over the rest of both lungs.

Abdomen.—Examination negative. Neither liver nor spleen seem enlarged.

Urine.—Clear, amber-coloured. Sg. 1014 acid. No albumen.

After-history.—*23rd July.*—Blood examined to-day. It was estimated that there were 2,200,000 red corpuscles in one cubic millimetre. There is a very great increase in the number of white corpuscles—180 being counted in one field.

25th July.—The eyes were examined to-day by Dr Reid. The right retina was found very œdematous and the veins over and beyond the right disc were very tortuous and dilated. In the left eye the veins were also somewhat tortuous.

1st August.—The edge of the spleen can be felt to-day below the costal arch.

Some small glands are visible to-day in the groins. They are about the size of horse-beans.

The child has lost 4 lbs. 11 oz. in weight since admission. There is no improvement. He complains of great pain in his head. The temperature to-day reached 103·6°. It has not usually been so high as this. On the 26th ult. it reached 104·4° but till to-day it has never been higher than 101·2°.

The pulse averages 158 and the respirations vary from 38 to 48.

4th August.—The patient is sinking rapidly, he is very restless. The skin is pallid with a yellowish tint and very cold. Respiration continues rapid.

5th August.—This morning the child died.

Post-mortem Examination

by Dr L. R. Sutherland, 6th August 1893. Autopsy twelve hours after death.

External appearances.—The body is considerably emaciated. There is marked pallor of the surface and of the accessible mucous membranes, associated with a very faint yellowish coloration. There is a very pronounced and prominent swelling around both eyes associated with exophthalmos, especially on the right side. This is tolerably resistant and does not pit on pressure. Associated with the swelling there is a more or less generalised ecchymosis, possibly *post-mortem.* On everting the eyelids the conjunctivæ are seen to be much thickened, each being converted into a projecting fold which has a bright lemon or greenish-yellow colour as if infiltrated with pus.

Immediately under and surrounding the lower part of the lobe of the left ear is a firm flattened swelling rather larger than a shilling, while below and in front of the right lobe a similar swelling exists. Over both temporal regions there is well-marked, more or less diffuse swelling. Over the right half of the forehead, and over the left superciliary region single small flattened cicatrices are present.

The right cheek is much swollen and somewhat glazed. A firm mass, movable in parts, but connected apparently with the alveolus of the right superior maxillary bone, is felt. The mass fuses with the tissues of the cheek and cannot be definitely limited—roughly it is about the size of a large walnut.

The surface glands are distinctly involved. This is very marked in the sub-maxillary and cervical glands, less marked in the inguinal, and still less in the axillary. In all these situations the glands are enlarged, isolable and freely movable. They have a firm, almost hard consistence and nowhere give evidence of softening.

Head.—On removing the calvarium, an unusual degree of adhesion of the dura mater to the bone is found. The membrane is thickened, especially in the vicinity of the superior longitudinal sinus. The inner surface of the membrane is coated with a tolerably thick layer of yellowish-green exudation. This is more or less generalised, but is most abundant

over the convexity, over the petrous bones, and in and around the pituitary fossa. It is confined to the inner or cerebral surface of the membrane, except at one point over the petrous portion of the left temporal bone where a patch of exudation, roughly the size of a shilling, is present also on its outer surface. In the situation of the exudation the adhesion to the bone is firmer than elsewhere. The left temporal bone, after sawing, shows evidences of chronic inflammatory disease of the middle ear. There is also distinct greenish staining of its substance. The right temporal bone is not examined. The cranial diploë generally shows a less marked greenish-yellow tint. The superior longitudinal sinus, and, to a less extent, the lateral and occipital sinuses, show on their inner walls distinct patches of yellowish-green material, either applied loosely to the wall, or free in the cavities. There is no definite evidence of thrombosis —only a small quantity of pale, soft, non-adherent coagulum being present. There is no evidence of thrombosis in the jugular veins.

There is some œdema of the soft membranes over the convexity, but the pia arachnoid shows no infiltration of the greenish material mentioned. In the choroid plexus of both lateral ventricles a small amount of yellowish-green material is seen. The brain substance presents nothing worthy of note.

In the left orbit there is a large amount of adipose tissue. This, like the other structures in the cavity. is infiltrated with yellowish-green material. The optic nerve is sheathed in a thick layer of similar material. The substance, however, is not invaded, and the globe itself appears normal. Right orbit is not examined.

Face and neck.—The swellings noted beneath and in front of the ears are found to be due to an infiltration of the tissues by a soft material which has a distinctly greenish colour.

The swellings over the temporal regions likewise result from a similar infiltration of the muscles and parts clothing the bones. The squamous portions of the temporal bones are not affected to the naked eye.

The swelling on the right cheek is found, on exploring the buccal cavity, to extend deeply, and to project into the cavity in the form of an oval, smooth, somewhat soft tumour the size of an almond. On section it closely resembles the other swellings noted.

Occupying almost the entire half of the hard palate on the right side is an elongated, somewhat firm, prominent swelling, which presents on section a distinct greenish coloration. On the left side there is a similar smaller prominence.

The parotid and sub-maxillary glands on both sides show a diffuse greenish staining of their substance.

Both tonsils are very considerably enlarged. They are globular in form, about the size of cherries, and their entire substance is infiltrated by a greenish-yellow material. The green colour is not obvious on the surface, but very distinct, after incision, in the central parts.

The sub-maxillary cervical and supra-clavicular lymphatic glands on both sides are distinctly enlarged, and all present on section a very obvious generalised coloration.

Thorax.—On removing the sternum, the tissues around the sternal attachments of the costal cartilages, as well as around the ribs on both sides, are infiltrated with a somewhat soft material which has a striking greenish or greenish-yellow colour. This occurs at places in the form of prominent nodules about the size of beans. On the right side, at the sternal attachment of the diaphragm, and adherent to its upper surface, is an ovoid mass the size of a hazel-nut, of a similar greenish colour.

The pericardial sac contains 2 oz. of pale straw-coloured fluid. The surface of the heart generally, but particularly that of the ventricles, shows an extreme degree of sub-pericardial hæmorrhage, the hæmorrhage occurring in small confluent patches or points. There is no evidence of recent fibrin, but on the surface of the right auricular appendix are several small areas of yellowish-green exudation, apparently sub-pericardial. The valvular structures are normal. On exposing the cavities, the hæmorrhagic condition is seen to extend for a considerable distance into the otherwise pale muscular substance. The wall of the left ventricle, and particularly the musculi papillares, show very typical flecking from fatty degeneration, while under the endocardium of the right ventricle are seen occasional hæmorrhagic patches. The cavities contain much pale yellow glistening clot, a small amount of opaque greyish-white clot, a considerable quantity of turbid chocolate-brown fluid, in addition to a certain amount of turbid serum.

Each pleural cavity contains a few ounces of clear straw-coloured fluid. The left lung is very slightly adherent at the apex posteriorly. The surface of both lungs presents mainly anteriorly, a pale yellowish-green colour, from the presence, evidently, of a sub-pleural infiltration. On section they both show considerable general hyperæmia, with œdema of their basal parts. The bronchial mucous membrane is at parts considerably injected, and a quantity of frothy fluid escapes from the minute bronchi on pressure. The bronchial glands are markedly enlarged, and, like the tissues around them, are infiltrated with a yellowish-green material.

Abdomen.—The spleen is slightly adherent to the diaphragm. It weighs 4¼ oz., and measures 5¼ × 3 inches in its greatest diameters. On its capsule over the convexity is a thin irregular layer of yellowish-green material. The organ is somewhat soft and friable, and on section is rather paler than normal. The Malpighian bodies are not specially prominent; evidences of decomposition are seen at the lower margins, the dull slate-blue colour contrasting strikingly with the fresh greenish-yellow colour of the upper part of the capsule.

The left kidney weighs 2½ oz., and shows remains of fœtal lobulation. Its capsule is readily stripped off, and on the smooth cortical surface a few irregular yellowish-green points are seen. On section the renal substance is somewhat pale, but tolerably firm, and similar yellowish-green areas are seen scattered throughout. These do not assume the form of streaks or lines, but have an irregular outline, and vary in dimensions from between the size of a hemp seed to a patch of half an inch in diameter. They are situated both in the medulla and cortex, more abundantly in the latter, and perhaps most abundantly around the vessels in the boundary zone. The pelvis and ureter appear normal.

The right kidney presents precisely the same appearances as the left.

The supra-renal bodies appear normal to the naked eye.

The pancreas, especially about its head, is adherent to the surrounding tissues and altered glands to be mentioned subsequently. The gland itself appears normal on section.

The liver is not appreciably enlarged. On section the connective tissue of Glisson's capsule throughout is uniformly stained of a light yellowish-green colour, which contrasts strongly with the brown, apparently normal hepatic substance. The colour appears as if due to an infiltration of the connective tissue sheathing the blood-vessels. The glands at the porta are matted together—they are enlarged and infiltrated with yellowish-green material. The common bile-duct is pervious.

The stomach shows evidence of *post-mortem* digestion, but is otherwise normal.

Intestine.—The patches of Peyer and the solitary glands throughout are prominent, but are not to the naked eye infiltrated. The vermiform appendix, which measures 2¾ inches, has a layer of yellowish-green material applied to its mucous membrane near its distal extremity.

The mesenteric glands show considerable enlargement. This, however, is not universal. On section, the enlarged glands present a yellowish-green colour similar to that of the bronchial glands.

Pelvis.—The bladder shows numerous yellowish-green areas on its mucous surface, some as large as a sixpenny piece, the majority smaller. The lower part of the *rectum*, immediately above the anal orifice, shows several small superficial ulcers of irregular outline. The floor and edges of these are stained a dark greenish-black colour.

After removal of the viscera the bones are more particularly examined. The tissues immediately covering the vertebral column in its entire extent are stained of a bright green colour. Occasional greenish nodules, the larger representing prevertebral glands, the smaller localised infiltrations, are seen. These are more marked in the upper half of the spine. The vertebræ present on incision a dark red colour. There is no green staining of their substance.

The ribs, sternum, clavicles, pelvic bones and upper parts of both femora show a similar greenish surface staining, but in none is any staining of the substance of the bone noted. In the inguinal regions the staining of the tissues is very evident, the glands showing distinct enlargement and infiltration.

A portion of the medulla of the right femur is examined. The bone marrow is semi-solid and of a dark reddish-grey colour. No greenish coloration is evident. There is no apparent widening of the cavity of the shaft of the bone.

Microscopic Examination.

Blood.—Films taken some hours before death are examined. There is great increase in the number of lymphocytes, which show considerable variations in size. Smaller forms, about the size of red blood corpuscles, with very scanty protoplasm and with deeply-stained nuclei are abundant. Forms twice as large, with a considerable amount of protoplasm and more faintly stained nuclei are numerous. The size of the majority is intermediate. Polymorphonuclear leucocytes are in no way increased. Eosinophile cells are not found. In each film examined a single nucleated red corpuscle is present. No distinct evidence of mitosis is noted.

Films prepared from the blood in the left ventricle and portal vein after death have similar characters.

Bone-marrow.—This consists almost entirely of mononuclear cells, corresponding in size and form with the small and especially with the intermediate forms of lymphocytes met with in the blood. A considerable number of eosinophile cells and a few nucleated red corpuscles are found.

In fresh films Charcot-Leyden crystals were observed.

Tissues and organs.—The microscopic appearances of these may be conveniently considered together. The "tumours,"

"infiltrations" and "exudations" mentioned consist of accumulations of cells with well-defined rounded nuclei which stain sharply with ordinary nuclear stains. While the form and size of the nucleus is virtually constant, the amount of protoplasm present varies somewhat, the great majority of the cells having the characters of the larger lymphocytes seen in the blood. Scattered promiscuously or arranged in small groups between the cells are numerous minute refracting granules. Similar refracting granules are seen in the protoplasm of some of the cells.

At places there is an approach to an inter-cellular reticulum, but the stroma, in the main, is formed by the tissues of the parts invaded.

Remarks.

The feature, which elicited universal comment at the autopsy was the green coloration of the lesions. This was most vivid over the vertebræ and in the substance of the lymphatic glands, where the tint was a frank grass-green, without admixture of yellow. Elsewhere a yellowish-green tone prevailed. The colour faded perceptibly on exposure to light and air, and I well remember my disappointment, on the day following the autopsy, in finding that, in great part, it had disappeared from the fresh tissues as well as from those placed in hardening fluids.

The wide distribution of the lesions is that observed in recorded cases of chloroma, and the terms "infiltration," "exudation" and "tumour" fairly accurately describe their nature.

The case was indexed clinically as one of leukæmia and the *post-mortem* examination serves to confirm the view of the existence of an intimate relationship between the two affections.

Clinical Notes

FRACTURE OF THE BASE OF THE SKULL—RAPID EFFUSION—TREPHINING—RECOVERY

Reported by CHARLES W. CATHCART, F.R.C.S.,
Surgeon, Royal Infirmary, Edinburgh

MARY F., aged four, was admitted to Ward 17, Royal Infirmary, about 8 P.M. on the 19th October 1901, in an unconscious condition.

History.—About an hour before admission the child was knocked down by a playfellow, and, according to the statement

made by a companion, landed on the back of her head. She was able to walk home and to mount a flight of stairs. A dessert-spoonful of castor-oil was administered, and she was put to bed at her own request, as she had some pain in the head. In about fifteen minutes the bowels moved, and while she was on the stool her mother noticed twitchings of the facial muscles. These became more marked, and were followed by general convulsions. She was at once brought to the Infirmary.

Previous health.—Two years before the accident her mother says that she was in a state of trance for 48 hours. At the end of that time a hot bath had given temporary relief, but gradually she became unconscious again, and remained so for 8 hours. A doctor was called in and administered a powder which caused a free action of the bowels. She rapidly recovered after this and has had no recurrence since.

Three weeks before admission she had severe pain at the back of the right ear, with discharge from the meatus which was said to be chiefly bloody. She was taken to a dispensary, and for some days before admission the ear had been syringed thrice daily.

When admitted the child was quite unconscious, conjunctival reflexes gone, no reaction to light of either pupil, and the left pupil markedly dilated. The muscles of the face and those of both upper and lower limbs were in a state of clonic contraction; the breathing was stertorous. After being put to bed the child vomited. The convulsions then ceased and the pupils became of equal size. A sero-purulent blood-stained discharge was noticed in the meatus of the right ear. There were no marks of injury on any part of the scalp. Lumbar puncture was practised, and the fluid withdrawn was found to be deeply blood-stained.

Diagnosis.—The child seemed to be suffering from the effects of rapid intra-cranial effusion. The mingling of recent blood with the purulent discharge from the right ear, taken along with the history of a fall on the back of the head, pointed to a fracture of the middle fossa of the skull on the right side.

Treatment.—It seemed better to begin by exploring the mastoid antrum, but finding nothing of importance there I carried the incision upwards and opened the middle fossa of the skull with the gouge. The dura mater was very tense. When the membrane was first incised, the blood spirted out with a pulsating jet as if from an artery. The opening in the dura was enlarged and the flow of blood and serum soon diminished. The ear was packed with iodoform gauze, but the aperture in the skull was left open for drainage The child had a good night, and next morning was sitting up in bed quite

bright and happy. She had no cerebral symptoms after this, and was discharged on December 28th with a little discharge still coming from the ear but otherwise in good health.

Remarks.—In the interval of consciousness, after the injury, followed by rapidly developing unconsciousness and fits, the symptoms in this case resembled those generally associated with middle meningeal hæmorrhage; the bleeding from the ear, however, pointed to the base of the skull, and the result of the lumbar puncture indicated hæmorrhage within the dura mater. Had there been no bleeding from the ear the lumbar puncture alone would have helped us to look for the bleeding at the base and within the dura, rather than in the course of the middle meningeal artery and outside the dura mater. The rapid recovery after relief of intracranial tension showed that there must have been little, if any, injury to the brain itself.

CANCER OF THE TRANSVERSE COLON IN A YOUNG WOMAN

By WILLIAM J. CROW, M.B., Ch.B. Ed.,
Senior Resident Assistant

With Comments by
R. C. BUIST, M.D., M.R.C.P.Ed.,
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J. T., a domestic servant, aged 25, was admitted into the Maternity Ward, Dundee Royal Infirmary, on March 23rd, 1902. She was spare and rather pale, with sallow skin, and dark rings round the eyes. Once at the sixth month there had been slight bleeding from the vagina, lasting only a few hours. Labour progressed normally, and a healthy female child was born. As the vagina dilated there was some tearing of the recto-vaginal septum, and an old recto-vaginal fistula became apparent. This was the remnant of a complete rupture of the perineum at her first labour (non-instrumental) four years previously.

During the recent pregnancy she had had attacks of colicy pain in the epigastrium, associated with swelling in that region and with diarrhœa. These occurred about once a month, generally, she thought, at the times corresponding to her menstrual period. They lasted about a day. She had never had jaundice.

During the puerperium she was douched twice daily,

on account of the recto-vaginal fistula. The first three days were uneventful. On the afternoon of the fourth (March 26th) she had a slight shivering. Her temperature was 101° F., and pulse 88. On the 27th her temperature was 101° F., and pulse 96. She complained of abdominal pain. The fundus uteri lay midway between the umbilicus and the pubes, and was firm and not tender. The seat of pain was higher than this. Scybala could be palpated at the sigmoid flexure. The transverse colon was full and could be moved up and down from the umbilicus to the xiphisternum, and was slightly tender. The descending colon was also palpable, though to a less extent. She was given a table-spoonful of castor oil. Next day she felt well, but her temperature at noon was 102° F. The bowels had moved freely four times, and the colon seemed well cleared, though there was still some tenderness over the transverse colon. The chest was examined, but nothing abnormal found. The spleen was not palpable. The temperature descended by lysis, and patient was comfortable until April 1st, when she again complained of paroxysmal abdominal pain. On April 2nd a globular swelling could be seen extending from the lower edge of the liver at about the ninth rib downwards and inwards towards the umbilicus. It resembled a distended gall-bladder, but the idea of its being the colon was not missed. The fingers felt as if a tense band ran from the top of the ninth rib towards the umbilicus, but it could not be definitely isolated. A shotbag was applied at night, and by morning the swelling had disappeared. The night nurse remarked that the swelling appeared with each attack of pain, and on its cessation again vanished. Similar attacks occurred on the 7th and 15th. After this the patient remained free from pain, the bowels moved once a day, and the pulse and temperature were normal, and on 22nd April she went to the convalescent home to recruit for the repair of the recto-vaginal fistula.

On May 1st she returned, having remained only a week, on account of the recurrence of the epigastric pain. This had commenced on April 27th, and was accompanied with sickness and vomiting and diarrhœa. She vomited soon after admission, and the vomited matter had a distinctly stercoraceous odour. The diarrhœa was still present, and she continued to have abdominal pain intermittently. The edge of the liver could be distinctly palpated, and distended coils of small intestine stood out prominently at frequent irregular intervals. On the 2nd she had no sickness, vomiting, or pain, and the fistula was repaired under local anæsthesia. On the following day the pain and vomiting returned, and continued to come on intermittently until the 5th. They were alleviated somewhat by means of potassium bromide.

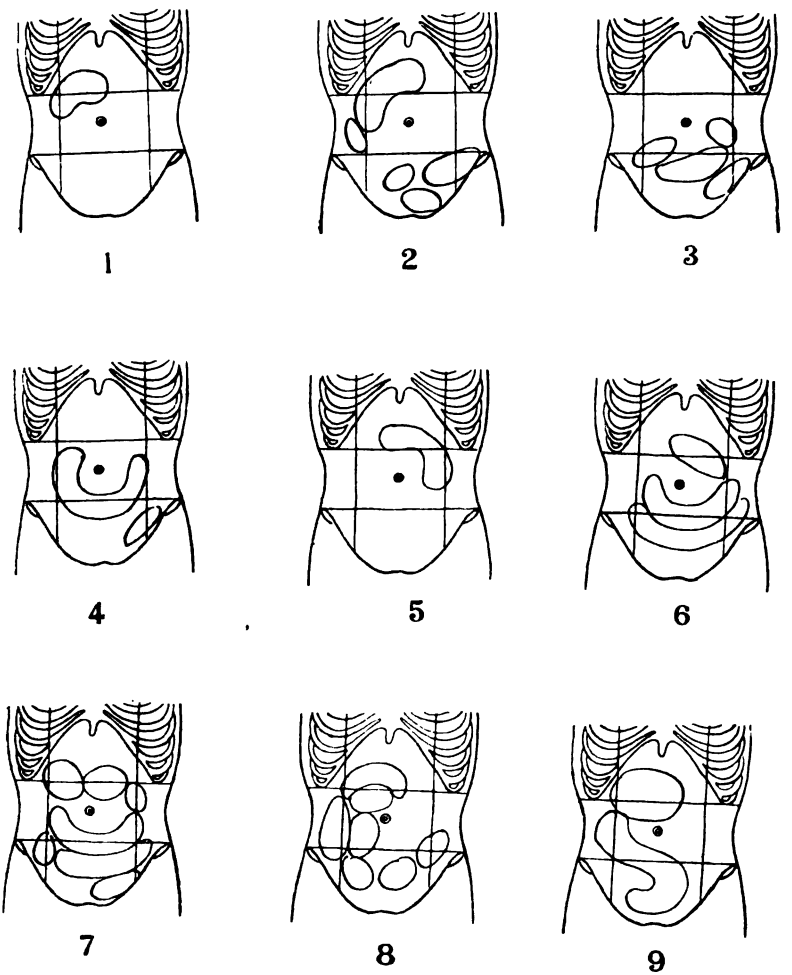

PLATE II.—TO ILLUSTRATE DR CROW'S PAPER.

FIG. 1.—A simple and common appearance.
FIGS. 2 to 9.—Series of immediately successive drawings of peristaltic patterns taken on May 5th, as rapidly as they could be drawn.

The series of diagrams 2-9 taken on May 5 shows the characters of the intestinal patterns. In them the successive coils of small intestine can be seen.

The next attack was on May 11th. Small doses of opium were tried, but gave no relief. On the evening of the 12th the temperature, previously normal, rose to 100·6° F., and the pulse-rate quickened from 72 to 100 per minute. Next day the temperature had fallen again to normal, and she was transferred to the medical wards at Professor Stalker's request. At 12.30 A.M. on May 19th she had a rigor, the temperature being 104° F., and the pulse 120, and she was sent back for operation.

The night after readmission to the gynecological ward she had much sickness and vomiting, and in the morning her pulse was 150 per minute, and very small. Under chloroform, followed by ether, the abdomen was opened in the mid-line below the umbilicus. From the peritoneal cavity there was a free flow of thin purulent fluid with a fæcal odour, but containing no fæces. A lymph deposit covered the coils of intestine, and was most intense toward the right iliac fossa. The appendix looked normal and was patent. No upper limit to the lymph was seen, and as, in spite of the free use of strychnine and saline suffusion, the patient was apparently moribund, nothing more was done. Death occurred within half an hour.

Four hours later Professor Sutherland reopened the abdomen. The lymph deposit was found irregularly distributed through the whole cavity. The uterus and appendages were normal; the right ovary contained an open corpus luteum cyst. The intestines were distended to the hepatic flexure, and just beyond this was a constriction formed by an annular cancer. This, on later microscopic examination, showed typical cylinder-celled epithelioma, with commencing colloid changes at the deeper parts. In the cæcum the mucous membrane was ragged and undermined, and just at the base of the appendix was a minute perforation. The presence of a Meckel's diverticulum was the only other important anomaly. The recto-vaginal fistula was patent.

Notes by Dr Buist.

While cancer of other organs is almost unknown in young patients, cases of intestinal cancer have been recorded at the ages of three, twelve, and seventeen. In this case the main clinical interest lies in the indications as to the site of the obstruction which was so evidently present. The intermittences and the apparent lack of urgency postponed the early operation which would probably have relieved and possibly cured the patient. The history divides into two periods. In the first

there were occasional attacks of pain and the transitory appearance of swelling in the right side of the epigastrium, with signs of distention of the ascending colon and the sensation of a band directed between the tip of the ninth rib and the umbilicus. In the second with the more frequent recurrence of the epigastric pain and swelling there was marked peristalsis in the small intestine, and the signs of distention of the colon could not be made out. Careful observation of the peristaltic waves, on several occasions, showed the successive folds of small bowel to the end of the ileum. In the latter half of this period disturbance of pulse and temperature occurred for the first time. In the first period, had we read the evidence with sufficient confidence, we should have seen the organic stricture of the transverse colon. In the second peritonitis in the right iliac region superseded this as a cause of obstruction, and save for the persistence of the epigastric pain masked its symptoms.

TWO CASES OF HYPERTROPHIC CIRRHOSIS OF LIVER WITH HÆMO-CHROMATOSIS

By HERBERT J. WALKER, M.B. Ed., M.D. Uruguay

THE discoloration of the skin in certain forms of cirrhotic liver has been most ably described by numerous French authorities, though it has generally been associated by them with diabetes. The two cases which some little time ago came under my notice did not present any glycosuric symptoms, hence I think they are worth recording.

CASE I. An estanciero's wife, forty-five years of age, had always led a peaceful life; her surroundings had been comfortable, and her habits as to food and drink were temperate; in fact, with exception of taking a small glass of wine with her meals, she hardly ever touched alcohol. Her diet had probably been too nitrogenous, owing to the Uruguayan custom of eating large quantities of meat and very little vegetable. Her family history was excellent, the only disease she remembered having suffered from was measles.

Present illness.—Some three months before she came to consult me she began to feel a swelling in the right hypochondriac region, but seeing her general health was not affected she delayed consulting a medical man. On examination I found the patient fairly well nourished, although she told me she had gradually been losing flesh.

In the right hypochondriac region the liver could be distinctly felt; in fact, its lower border reached to considerably below the umbilicus. The abdominal wall was extremely

flaccid, and I was able to grasp the rounded lower border of the liver with my fingers and trace it up into the epigastric region. The spleen could easily be felt bulging below the lower left costal margin, and its anterior notch was distinctly palpable. The heart sounds were perfectly normal; the pulse, 80 per minute, was full and strong; the blood on examination showed a slight diminution in the number of red blood corpuscles, the white being increased in amount. The lungs were healthy, the appetite was good, the urine showed no traces of bile acids or pigment, and contained neither albumen or sugar.

The patient complained of not being able to use the clothes she was accustomed to wear, owing to the swelling over the region of the liver. What troubled the patient most was the remarkable change which was taking place in the colour of her skin. The cutis all over the surface of the body was becoming deeply bronzed, the hands and arms especially being deeply pigmented. After a month's careful dieting and treatment the bronzing became more pronounced. At the same time a marked proliferation of the superficial layers of the epidermis of the arms and hands became noticeable, with formation of horny scales giving rise to intense itching. The patient complained of no pain, and although she ate her food with relish, it could be observed that she was gradually getting thinner, and after being some eight months under my care she wasted away and died.

CASE II.—A man, fifty years of age, came to consult me with symptoms almost identical to case No. 1. Again there was the deep bronzing of the entire cutaneous surface of the body, being especially marked on the hands and arms, the horny proliferation of the epidermis on the fingers and backs of hands and wrists being very noticeable. On examination the liver was found to extend about one inch below the right costal margin. The spleen was not palpable, there was no jaundice, and the urine was entirely free from bile, sugar and albumen. The heart and lungs presented nothing abnormal. An examination of the blood showed no decrease of the red blood corpuscles, though there was a slight increase in the number of the white.

The patient had led the tranquil life of a South American estanciero, and had always been most abstemious; his previous health had been excellent. This patient did not present any symptoms of emaciation as in the previous case, and although he suffered from marked depression of the spirits, his appetite remained good, and after a course of dieting combined with massage, exercise and cold shower baths, he was greatly relieved.

I may state that I had the advantage of having my diagnosis in those two cases verified by two distinguished Uruguayan doctors, who had quite recently taken their degrees in Paris.

Meetings of Societies

The Edinburgh Medico-Chirurgical Society

THE twelfth meeting of the session was held on Wednesday, 2nd July.

Dr Chalmers Watson showed a case of lupus vulgaris under treatment with bone-marrow.

Card Specimens.

By Dr Chalmers Watson—

Photographs of cases of lupus vulgaris and psoriasis, to show the results of treatment.

By Mr Robert Purves—

1. Femoral artery, ruptured by constriction of thigh by running rope; the torn end of the artery sealed by natural arrest of the hæmorrhage.
2. Sections showing the deposit of iron in the tissues in the vicinity of a fragment of steel lodged in the forearm.

By Mr Alexis Thomson—

1. Depressed fracture of skull sustained twenty years before death.
2. Intestines showing strangulation by band.

Papers were read

By Dr F. D. Boyd—

"Fallacies in the copper reduction test for sugar in the urine."

By Dr R. A. Fleming—

"The peripheral theory of nerve regeneration, with special reference to peripheral neuritis (with lantern and microscopic demonstration)."

By Dr H. M. Church—

"Notes on a case of intestinal fistula, probably jejunal."

These will appear in the Journal.

Forfarshire Medical Association

REPORT OF FORTY-FOURTH ANNUAL MEETING

THE Forty-Fourth Annual Meeting of the Association was held in the University College, Dundee, on Thursday, 3rd July 1902, at 4 P.M. Professor MacEwan, President, in the Chair.

The Minutes of last Annual Meeting having been printed and circulated were held as read. The Minutes of last Ordinary Meeting were then read and approved of.

The Secretary then read his Report, which was agreed to unanimously.

The Treasurer then submitted his Annual Statement of the Income and Expenditure of the Association, which was adopted unanimously.

Dr Sturrock (Broughty Ferry) moved and Dr M'Gillivray seconded the election of the following as Office-bearers for the ensuing year:—*President*, Dr Laing, Arbroath; *Vice-Presidents*, Dr Buttar, Downfield; Dr M'Farlane, Dundee. New members of Council, Drs Guild, Graham Campbell, and M'Vicar, Dundee; and also the re-election of the Local Secretaries—Arbroath, Dr Laing; Montrose, Dr Key; Forfar, Dr M'Alister; Brechin, Dr Adam; and the re-election of the Secretary and Treasurer, Drs Halley and Foggie respectively.

This was agreed to unanimously.

The President then delivered his address on "The Treatment of Surgical Tuberculosis."[1]

Dr Crawford Renton, Glasgow, spoke in support and appreciation of Professor MacEwan's paper. Dr Alexander Campbell moved a hearty vote of thanks to the President for his interesting and instructive address. Dr Sinclair spoke in support. The meeting heartily thanked the President. The members were then photographed, and thereafter viewed the photos, etc., exhibited in the Botany Class-Room.

At 6 P.M. the members assembled for dinner in the Queen's Hotel, when Professor MacEwan presided, supported on his right by Professor Chiene, C.B., Edinburgh; Dr Duncan, Dundee; Mr Campbell, Dundee; Dr Grant, Glamis; and on his left by Dr Renton, Glasgow; Dr Sinclair, Dundee; Dr Rorie, Westgreen, Liff; Dr Alexander, Forfar; Dr Steven, Dundee. The croupiers were Dr Laing, Arbroath, supported on his right by Dr M'Farlane, Dundee, and on his left by Dr Orr, Tayport; and Dr Sturrock, Broughty Ferry, supported on his right by Professor Stalker, Dundee, and on his left by Dr Constable, Leuchars.

Other members present were: Drs Urquhart, Perth; Kynoch, Buist, Guild, G. F. Whyte, Johnston, Young, G. W. Miller, Foggie, Traill, H. Buist, Brush, Crow, M'Laren, Halley, Dundee; Colman, Broughty Ferry; Paton, Carnoustie; Barron, Letham; Peterkin and M'Alister, Forfar; Rorie, Cardenden; Orr, St Andrews; Buttar, Downfield.

The loyal and patriotic toasts were heartily pledged. The

[1] Will appear in the Journal.

Secretary intimated letters of apology from: Professor Wyllie and Dr M'Bride, Edinburgh; Professor M'Call Anderson and Dr Gemmell, Glasgow; Professors MacIntosh and Musgrove, St Andrews; Dr Niven, Newburgh, and Dr Douglas, Cupar (President and Secretary of the Fifeshire Medical Association respectively); Dr Lawrence, Montrose; Drs Wemyss and Mackness, Broughty Ferry; Dr T. F. Dewar, Arbroath; Dr Charles Moon and Mr Greig, Dundee.

Professor Chiene proposed "The Forfarshire Medical Association," to which Dr Duncan replied. Dr Renton proposed "The Infirmaries and Asylums of Forfarshire," to which Dr Rorie replied.

Dr Sinclair proposed "The Scottish Universities and Medical Schools," to which Professor Chiene replied.

Professor Stalker proposed "The Guests," to which Mr Campbell replied.

Dr Buist proposed "The President," and Professor Kynoch proposed "The Secretary."

Editorial Notes and News

The King's Illness.

WHAT seems to us the wisest criticism on the wild rumours that have been flying about the King is that of the *New York Medical Journal* of June 28th as follows:—

"We cannot but regard it as most unseemly that a few medical men in this country and in Europe have seen fit to deliver themselves of derogatory 'long-distance criticism' in the newspapers, with as little justification—that is to say, none at all—as was done in the case of President M'Kinley. In the light of our own London dispatches and of such other information as appears to us to be trustworthy, we feel perfectly certain that a correct diagnosis was made in the King's case at as early a period as was possible, and that the operative intervention was well timed and conducted with the utmost skill and prudence. It is not at all uncommon in that form of appendicular troubles which leads to a bulky exudation of lymph and then to perityphlitic abscess for the manifest attack to be preceded by vague manifestations that nobody would be bold enough to declare due to disease of the vermiform appendix."

The General Medical Council.

FINANCE was the most important subject dealt with at the recent meeting of the Council.

No one who reads the report will feel inclined to differ from

the Committee which represented that the financial position of the Council is unsatisfactory. A body which for the last seven years has spent on an average £1200 a year more than it has received is obviously *en route* for bankruptcy. This year the deficit was £1508, 12s., and it has at last been borne in upon the Council that this sort of thing cannot go on. The diminishing number of students promises to still further diminish the receipts, while the expenses remain the same. The receipts are mainly derived from the £5 fee which is paid on registration, and the expenditure is mostly on the fees of the members. Proposals to diminish these did not meet with much support. It is interesting to note that they came mainly from the Scottish members. The most practical of the proposals was that of Dr. Heron Watson, that the sederunts be longer and the speeches shorter, the latter to be attained, according to the report of the proceedings in the *British Medical Journal*, by members "circumcising" their tongues. But as this did not meet with general approval, the Council turned to the other method of squaring the balance sheet, viz., increasing the receipts.

The proposal that a fee of £1 be exacted for admission to the Students' Register was carried by a majority of one, the objectors holding that as several of the licensing bodies refuse to regard students' registration as compulsory the proposal was premature. There is no question but that compulsory registration of students is essential if the Council is to have that full control of Medical Education which it ought to have, but with powerful bodies, such as the English Colleges, defying the Council on the matter, it seems at present hardly practical politics.

The Council next considered its other possible source of revenue, and by a majority of 17 to 8 it was decided that the fee for enrolment on the Medical Register be raised to £10.

The question of an annual registration fee was raised—and Mr Jackson in proposing it stated that the amount raised by a ten shilling fee would be £10,000—but the proposal was defeated by 22 to 3. Dr Heron Watson, in opposing the proposal, said that it would degrade the Council in the eyes of the profession. We question this. The lawyers pay an annual fee of £3, and we believe that the profession as a whole trusts the General Medical Council more than the General Medical Council thinks. If the profession was satisfied that it got value for its money, we do not think it would grudge the ten shillings. Unfortunately the doubling of the registration fee cannot be enforced without the consent of Parliament, and it is rather sad to see that the only Member of the Council who is also a Member of Parliament has no very sanguine opinion as to the way the House of Commons is likely to listen to the proposal.

It was ultimately decided to re-appoint the Financial Relations Committee, with instructions to draft a Medical Acts Amendment Bill, to carry out the proposed changes.

The Treatment of Weak-minded Delinquents.

THE Scottish Prison Commissioners in 1901 collected from the governors, chaplains, and medical officers of prisons particulars concerning eighty-five weak-minded delinquents who came under observation during the period of six months, May 15th to November 15th. These particulars furnish the facts for a paper by Dr James C. Dunlop in the annual report of the Prison Commissioners for Scotland, 1901, which is reproduced in the *Scots Law Times* for June 14, 1902.

The proper treatment for persons of this class is a very difficult question. Even when the mental weakness is very obvious, such persons are frequently not certifiable as lunatics, or if they become certifiable and are sent to an asylum, they may quickly settle down under the asylum discipline and conduct themselves in such a rational manner that they cannot be retained long as ordinary pauper lunatics. Nevertheless they may be quite unable to resist the temptations which meet them if they are freed from restraint. Fifty-eight of the eighty-five cases mentioned above were not dealt with as insane, and of these no less than nine returned to prison before 1st March 1902.

One difficulty in the way of treating these cases as lunatics lies in the fact that at the date of expiry of the sentence of imprisonment the original medical certificates obtained by the prison authorities are held to be invalid, and recertification is considered necessary. Possibly if this condition were removed it would be possible to transfer a larger proportion of cases directly to lunatic asylums, since the possible difficulty in obtaining such fresh certificates after the patient has settled down to the routine of asylum life is doubtless responsible in part for the small number treated in this way.

The remedy proposed by Dr Dunlop for the existing state of affairs is "segregation of these unfortunate, helpless creatures in some institution where they will be detained until they are either sufficiently strengthened to care for themselves or until some responsible guardians can be found to be responsible for them," and he suggests that a slight alteration in sect. 19 of the Lunacy (Scotland) Act, 1862, would give the necessary power for detention in a criminal lunatic department after the expiration of the sentence "during His Majesty's pleasure."

The British Medical Association and its New Constitution.

AT a meeting held in Exeter Hall on the 9th of July, at which about 130 members were present, the new scheme which has been before the Association for over a year was formally adopted. There has been a great deal said against the scheme, some in childish ignorance, some in culpable ignorance, and some by persons who were guilty of almost deliberate misrepresentation. It seems more than probable that the change will work for good. It will prevent those unpleasant scenes which too frequently marred the annual general meetings, at which, under the previous articles and bye-laws, it was possible for any one to air any grievance, real or fancied. Now there will be a regular organised plan for bringing matters before the Association for discussion, and those gentlemen who have worried the Association so much in the past will be compelled to do their worrying in their own country, where, like the prophets, they have, as a rule, comparatively little honour.

The system as it has evolved is wonderfully like our Presbyterian system, for the Divisions correspond to Presbyteries, the Branches to the Synods, and the Representative meeting to the General Assembly. Any matter may be brought before one of the Divisions, which, like the Presbytery, can send it on or reject it. If it is worthy of consideration it will come before the whole of the Divisions of the Association.

The scheme is an attempt to provide an organisation for ascertaining the opinion of the medical profession on any vexed question, and when one sees how hopelessly divided were the medical members of the House of Commons on so important a question as the Registration of Midwives, it is obvious that a means for the elucidation of the opinion of the profession as a whole, which has hitherto been wanting, will be a great gain.

The opponents of the scheme have darkened the air with threats of what will happen if the scheme is adopted. We do not share their apprehensions. The fact that 1s. 6d. is added to the subscription will not, we think, lead to such wholesale resignations as these gentlemen have prophesied, and we believe that there will really be more difficulties about admission to local membership than about anything else.

The Midwives Bill.

AFTER entering the House of Commons as probably the worst of all the many attempts at legislation on this vexed subject, the Bill leaves the House of Lords in a form hardly recognisable.

The acceptance of the penalty for "habitual practice for gain" has entirely altered the character of the Bill, and had the promoters accepted that principle in their original Bill, there

would have been less opposition from the medical profession. The Bill is far from perfect, and its success or failure will now depend mainly upon the rules to be laid down by the Midwives Board. We must say we are not enamoured of the composition of that Board, and its authority will depend upon the representatives the different Boards nominate. Why certain nursing institutions should have representatives on a Board for the regulation of midwives' practice, while the practice of nursing is entirely unregulated, is a little difficult to see, but if these Institutions nominate intelligent representatives it does not after all matter much who does the nominating.

The medical profession owes much gratitude to Mr T. P. O'Connor who, "coached" we believe by Dr Ambrose, most successfully manœuvred his weaker forces against the Government's majority. But if there is any one in particular to whom the profession owes gratitude for the defeat of the pernicious principles contained in the Bill as it was originally drafted, it is to Sir Victor Horsley, whose untiring energy and perseverance we trust the medical profession of England, in the forthcoming election to the General Medical Council, will adequately recognise. We have no hesitation in saying, that had it not been for Sir Victor Horsley, the public and the profession would very soon have had reason to regret the passage of the Midwives Bill.

Arsenic and Cancer

THE *Times*, the *Practitioner*, and the *Polyclinic* have all dealt with this subject recently. We do not wish to follow our up-to-date contemporary in its method of dealing with the subject, but we do think it unfortunate that Mr Hutchinson should, inadvertently no doubt, convey to the public the idea that arsenic is a drug which it is positively dangerous to use. That carcinoma of the skin occasionally follows upon the prolonged use of arsenic there can be no doubt; but the cases which have come under our notice have been the cases where the patients, on their own responsibility, have taken arsenic for years, and it would be a pity were so generally useful a drug to come to be positively feared by the public.

In the *Polyclinic* Mr Hutchinson states that "enquiry from London chemists showed that arsenic was prescribed once in every fourteen prescriptions."

This seemed to us so extraordinary that we made enquiries of the leading Edinburgh chemists, and must confess that we were surprised to find that it was approximately correct. The proportion, it is true, is not quite so high as in London, but it is remarkable. Messrs Baildon & Son inform us that of

their last 1000 prescriptions 44 contained arsenic, and Messrs Duncan, Flockhart & Co. that 35 of theirs did.

Of Messrs Baildon's 44 arsenical prescriptions, no fewer than 21 were in pill, tabloid or palatinoid form.

But this is not the whole. Mr Hutchinson's statement that arsenic is prescribed three times as often as it formerly was is also confirmed almost exactly in Messrs Duncan, Flockhart & Co.'s registers, in which in 1862 arsenic was prescribed 12 times in 1000. In Messrs Baildon's figures for 1852 arsenic only appeared 9 times.

But we do not quite see that it follows that this increased prescribing of arsenic is the cause of an increase in cancer. Surely if that were the case, and the prescribing of arsenic has increased threefold, cancer, if it were due to it, would have done the same.

But Mr Hutchinson having started the hare, it will be necessary to run it to earth, otherwise one will soon be meeting with flat refusals on the part of patients to take arsenic in any form, and we therefore trust that particularly the senior practitioners will publish any experiences of theirs bearing on either side of the question.

The School of Medicine of The Royal Colleges, Edinburgh.

AT a meeting of the Governing Board of the School of Medicine of The Royal Colleges, Edinburgh, the Secretary, Mr R. N. Ramsay, reported that the number of students attending the school during the winter session 1901-1902 was 1143, and during the summer session 1902, 1148.

The Royal Infirmary.

THE Managers have adopted the suggestion of the Surgical Staff, and no steps will be taken in the meantime to fill the vacancy caused by the resignation of Mr Shaw M'Laren. The new blocks are approaching completion, and in view of possible re-arrangements of the wards it was thought better to postpone any appointment.

Anderson's College Medical School, Dumbarton Road, Partick, Glasgow.

THE Summer Session has just closed. It was curtailed by a few days owing to the general arrangements for the Coronation festivities, which unhappily were postponed. The number of students matriculated was much the same as that of previous summer sessions, and the work performed in the various departments of the school was highly satisfactory to teachers and students alike. The following are among the most distinguished of the students:—*Regional Anatomy* (Professor A. M. Buchanan)—Honours: Jas. A.

Ashurst and Alex. C. Russell (equal), Jas. H. Baird, John C. Russell, Wm. N. Walker, Alfred E. M'Dougal, John Macnamara, Hugh A. MacEwen, Thos. T. Ramkin and Thos. O. Wilson (equal), Alex. M. Watson and John Watt (equal). *Descriptive Anatomy*—Honours: Peter Mitchell, M.A.; Jas. H. A. Robertson, Arthur M. Crawford, Thos. M'Cririck, M.A.; Thos. B. Smith, James H. Milne. *Class Prosector*—James A. Ashurst. *Physics* (Professor Bennett)—Honours: J. H. Paterson, Donald M. Johnstone. *Botany* (Professor Cormack)—Honours: J. Arthur Smith. *Zoology* (Professor Todd)—Medal: J. Arthur Smith. Honours: G. W. Hill, Jas. B. Macgregor, Jno. Fotheringham, Arch. R. F. Douglas. *Practical Pharmacy* (Professor R. Barclay Ness)—Honours: A. R. M. MacIlraith, Wm. MacIlraith, Arch. F. Spinks. *Midwifery* (Professor Edgar)—Medal: Reginald N. Macdonald. Honours: James Cullen, And. F. Garrand. *Medical Jurisprudence* (Professor Carstairs Douglas)—Medal: John Cross. Honours: Andrew P. Walker, Reginald N. Macdonald. *Ophthalmic Medicine and Surgery* (Dr T. Spence Meighan)—First prize: Gavin Muir; second prize: James Wilson and Jas. D. M'Culloch (equal). Honours: T. Manson, J. B. Stevenson and P. H. Robertson (equal), Alex. G. Clark and John Cross (equal). *Aural Surgery* (Dr James G. Connal)—Honours: J. M. Kelly.

Leith Hospital. DRS. EDWIN MATHEW and Edwin Bramwell have been appointed Assistant Physicians in place of Drs. Stewart Fowler and Hill Buchan resigned.

Recent Literature.

CRITICAL SUMMARIES AND ABSTRACTS

MEDICINE

TUBERCULOUS PERICARDITIS

By FRANCIS D. BOYD, C.M.G., M.D.,
Assistant Physician to the Royal Infirmary; Physician to the Deaconess' Hospital.

TUBERCULOUS pericarditis is certainly not a common affection, but it is by no means so rare as some of the text-books might lead us to believe. It is of interest both from the point of view of treatment and of diagnosis.

Tubercle may affect the pericardium either as a part of a general outbreak of miliary tuberculosis or as a localised tuber-

culous mass in the epicardium. At times it results from mere extension of the tuberculous process from adjacent parts. When effusion occurs into the pericardial sac, as it frequently does, it may be serous, hæmorrhagic or purulent. When healing takes place it is through the formation of fibrous adhesions. The thickening of the sac-wall may be considerable, and in the caseous form healing may be accompanied by calcification.

Formerly tuberculous pericarditis was regarded as a primary affection, but this view has now been generally abandoned, a primary focus of infection having been located in all the recent cases when *post-mortem* examination was carried out. Several examples of the affection have recently been recorded which would tend to throw doubt on the statement of Wells, that "tubercular pericarditis is generally unaccompanied by any symptom referable to the heart, and is almost always an autopsy finding."

Robinson has recently reported two cases. The first, a coloured patient, was admitted complaining of having caught cold a week before, resulting in pain in the lower chest and difficulty in breathing. On examination an area of dulness, about the size of the palm of the hand, was discovered in the region of the left nipple, with high pitched breathing and crepitations. The temperature was elevated. The following day effusion into the right pleural sac had developed. The heart sounds became very feeble, and the area of precordial dulness enlarged. The area of precordial dulness gradually increased, and two weeks after admission the pericardium was aspirated, and 40 oz. of reddish-brown fluid evacuated. Temporary improvement followed. But the fluid again accumulated, was aspirated, and a third time accumulated and was again evacuated. The patient developed phlebitis, and died comatose. The fluid when examined by film preparations showed the presence of tubercle bacilli. *Post-mortem* the heart showed a thick coating of fibrous and granulation tissue, which contained giant-cell systems and tubercle bacilli.

The second case was admitted to hospital with a history of four months' illness—pain in the right side, followed by cough with some blood-tinged expectoration, fever and general malaise. Three and a half months after the initial symptoms, pain developed in the precordium, with palpitation and dyspnœa. There was increased precordial dulness, with, in addition, effusion into the right pleura. Some fluid was withdrawn from the pleura and a guinea-pig inoculated. In due course the animal developed tuberculosis. The patient died comatose. *Post-mortem* examination showed the pericardium much thickened with cheesy degeneration and giant-cell systems.

In the fat beneath the visceral pericardium there were numerous tubercles. The lungs, liver, spleen and meninges showed disseminated miliary tubercles.

A third case is recorded by Dr F. R. Sabin. The patient, a young man, 21 years of age, complained of pain over the heart. Signs of pericardial effusion developed. The apex beat disappeared, there was precordial bulging, and signs of compression of the left lung, as shown by flat tympany in the left axilla. The pericardium was tapped, but the fluid reaccumulated. Tubercle bacilli were found in the exudate. Paracentesis was resorted to five times. The cellular elements of the exudate were studied. Out of 1000 leucocytes counted, 98·5 per cent. were small lymphocytes, 1·3 per cent. large lymphocytes, and 2 per cent. polymorphonuclear leucocytes.

From the diagnostic standpoint the observations of Aporti and Figaroli are of interest—what is the smallest quantity of fluid in the pericardial sac which can be demonstrated by percussion? Their observations were carried out on the cadaver, a trocar being introduced into the pericardium, and the fluid, a one per cent. agar solution, injected, care being taken to prevent the entrance of air along with the fluid. They found that fluid in the pericardium was first demonstrable by percussion, when 150 to 200 c.c. fluid had been introduced. The area of dulness with the subject in the horizontal position in Aporti and Figaroli's observations increased in every direction proportionally with the amount of fluid introduced. In the horizontal position the anterior surface of the heart was only partially covered; in the vertical it was eventually completely covered. In the horizontal position the great vessels at the base of the heart were surrounded by a considerable quantity of fluid, while in the vertical position the base of the heart remained more or less free from fluid, even when a considerable quantity was introduced. Damsch has carried out an elaborate series of observations, not only in cases where the heart was normal in size, but where there was marked dilatation. Damsch finds that small quantities of fluid collect in the lower and antero-lateral portions of the pericardium, causing approximation of the right anterior portion of the pericardium to the chest wall. This corresponds accurately with the clinical observation of Rotch, who drew special attention to the absence of resonance in the fifth *right* intercostal space as a valuable diagnostic sign in early effusion. The heart in Damsch's experiments when normal in size was found pressed against the posterior portion of the pericardium, the fluid occupying the anterior portion. When the heart was hypertrophied, its increased size influenced its position, the fluid collected below,

pressing up the heart, which with its increased antero-posterior diameter occupied the whole space between the anterior and posterior chest wall, and thus came in apposition with the chest wall. Clinically, it is generally held that the position of the patient has an influence upon the area of cardiac dulness in pericardial effusion. If the patient assumes the upright position the area of dulness increases, and the increase in the dulness is especially noticeable at the upper limit. This alteration in the area of dulness is generally emphasised as a valuable diagnostic sign in doubtful cases of pericardial effusion. The change in the area of dulness is fully explained by Damsch's observations, the increased dulness being due to the enlarged heart being carried upwards. Aporti and Figaroli's results differ from this, for they found that proportionally the increase of dulness in the vertical position was greatest towards the apex. They seem, however, to have worked with normal hearts, and one feels more inclined to accept Damsch's results, agreeing as they do with the weight of clinical evidence.

Effusions into the pericardium may be of considerable amount. Working with the cadaver, Aporti and Figaroli were only able to introduce 650-700 c.c., a small quantity, and no criterion of the amount which may be effused in disease. Cases have been described where as much as 4480 c.c. have been removed in pericarditis. The process of effusion is a gradual one, and the pericardium weakened by the inflammatory process yields to the pressure of the fluid, and very large effusions may occur.

Given a case of tuberculous pericarditis, is the physician to aspirate? The answer must be decidedly in the affirmative if the signs of cardiac difficulty be at all marked. Given a rapid, irregular pulse, dyspnœa and some cyanosis, paracentesis is distinctly indicated. The indication for paracentesis is much more emphatic in tuberculous pericarditis than in effusions occurring in the course of acute articular rheumatism, or as sometimes seen in the course of nephritis. In the latter conditions absorption may occur rapidly under treatment, but this is not the case in tuberculous pericarditis. Absorption, if it occurs, is so slow, that permanent changes take place in the heart and pericardium, so that if the patient chance to recover, the heart is irretrievably damaged. The classical site for puncture is in the fifth left interspace near the sternal margin. The wisdom of this choice of position is well brought out by Damsch's observations. The fluid collecting at the lower part of the pericardial sac presses up the heart. If the needle be introduced in the fifth or sixth interspace, there should be no danger of wounding the heart even if the fluid be small in amount. If the trocar be passed upwards and inwards, it should

pass under the heart even if the heart be enlarged. To fully empty the pericardium the point of the trocar should be moved downwards and outwards. The value of paracentesis was particularly noticeable in the case quoted by Sabin.

It is interesting to note in the later cases of tuberculous pericarditis how frequently tubercle bacilli have been found in the exudate during the patient's life (Robinson, Kast, Shattock, Sabin), and if not found in film preparations from the exudate, their presence has frequently been demonstrated by inoculation experiments on animals. This result contrasts very markedly with the writer's experience in tuberculous pleural effusion. In the last five cases of pleurisy with effusion which have come under observation, the tuberculous element was undoubted. In some, tubercle bacilli were found in the sputum. In all the most diligent search failed to demonstrate the presence of tubercle bacilli in the fluid, and in all inoculation experiments on animals were negative. One must conclude that the bacilli are, therefore, much more numerous in pericardial effusion than in pleural effusion.

Sabin's case seems the only one in which attention has so far been directed to the cellular elements of the effusion—cytodiagnosis. It is of interest to note how nearly her observation corresponds with results got in tuberculous pleural effusion. Cytodiagnosis has been so recently treated in this journal, that it is unnecessary to enlarge upon the point.

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SURGERY

GENERAL ANÆSTHETICS

By D. C. A. M'ALLUM, M.B.,
Anæsthetist, Royal Edinburgh Hospital for Sick Children

THE most important contribution made lately on this subject is undoubtedly the series of lectures delivered by E. H. Embley, Anæsthetist to the Melbourne Hospital, before the Society of Anæsthetists in April last. The lectures having been delivered so lately it is unnecessary to do more than touch upon them. The particular scope of the investigation was the causation of death in the early stage of chloroform anæsthesia. This period

was particularly chosen on account of the greater tendency to death, and apparently in no previous research has this group of cases been investigated. In the experiments dogs were used, since like human beings they are specially susceptible to the action of chloroform. A large number of experiments were performed, the necessary preparation of the animals having been previously carried out by means of morphia or ether anæsthesia. In this way the result of chloroform inhalation could be recorded from the very start. A special apparatus estimated the dosage of the drug and accurately determined the strength of the vapour in the respired air.

The conclusion reached by the author is that these cases of sudden death in the early period of chloroform anæsthesia are due to vagus action on the heart, which itself is extremely sensitive to the action of chloroform.

Stoppage of the heart leads to stoppage of the respiration, but if the vagi be cut the heart begins to beat again and the respiration recommences.

He emphasises two points—(1) that the chances of a dangerous vagus inhibition are much increased by imperfect respiration; (2) that a rapid fall in blood pressure, brought about by inhalation of too strong a chloroform vapour, can of itself induce failure of the respiration. If these conclusions are correct, it is clear that the routine use of atropine before the administration of chloroform is distinctly indicated.

Sir Wm. Mitchell Banks (*Liverpool Medico-Chirurgical Journal*, September 1901) in opening a discussion at the Liverpool Medical Institution, read a long and instructive, if somewhat dogmatic, paper on "Impressions about Ether and Chloroform." Sir William holds that his very large experience both as anæsthetist and operator — amounting to many thousands of cases—entitles him to dogmatise on the subject, and he justifies the discussion by the fact that during the last ten years deaths from anæsthetics in England and Wales have just doubled. He cannot see that any practical benefit has resulted from physiological experiments and commissions on anæsthetics, since there never can be any comparison between the effect of any anæsthetic on a healthy animal and on a diseased human being. In support of this opinion, he quotes the following statement made by Mr Eastes, the Treasurer of the British Medical Association Commission on Anæsthetics, in his analysis of the report of the Commission:—"The most important conclusion is the last that *by far the most important factor in the safe administration of anæsthetics is the experience of the administrator*, and that in many cases the anæsthetisation is of such importance and gravity that it is absolutely essential

that an anæsthetist of large experience should conduct the administration."

Sir William does not believe in the "sudden collapse" which so frequently appears in the reports of fatal cases, and expresses his firm conviction that the real cause of the collapse is the inability of the anæsthetist to recognise the early symptoms of danger and avert it in time. He further commits himself to the deliberate opinion that the majority of deaths from anæsthetics are preventable, and are due to either want of knowledge or want of care on the part of the anæsthetist.

The chief dangers of chloroform are described as—

(1) Over-administration of the drug when there is no necessity as regards the operation, and in this connection the author points out that whatever anæsthetic is used over and above what is necessary for surgical purposes is poison, and that the great secret is to give not a drop more than is required to prevent the patient feeling pain.

(2) Imperfect aeration of the blood through the tongue being allowed to fall back.

(3) Violent repression during the stage of excitement, combined with the continual dosing with the drug.

With regard to ether, the great danger is blocking up of the larynx with frothy sticky mucus which is sucked into the trachea and bronchi, thereby impeding the aeration of the blood.

Sir William advocates the administration of stimulants, preferably brandy almost neat, just before the anæsthetisation. He points out that many a patient after a good big dose of brandy requires very little anæsthetic indeed.

Cases of valvular disease of the heart may be anæsthetised safely, while cardiac dilatation or fatty degeneration are dangerous.

Chloroform is specially dangerous in patients with albuminous urine and diseased kidneys. In his opinion the safest attitude for the patient is the recumbent position on the left side, and instances in support the rarity of death during child-birth, and, further, that in this position the tongue falls freely forward.

Ether Pneumonia.—Paul Campiche (*Rev. Med. de la Suisse Romande*, Feb. 20, 1902) in a long paper on ether anæsthesia with illustrative cases, expresses his opinion that ether is a specific irritant to the pulmonary system, and that a certain proportion of cases of pulmonary trouble after ether are unavoidable.

He points out that similar complications occasionally occur after chloroform administration.

Like Mitchell Banks, he deprecates the administration of any more anæsthetic than is necessary to keep the patient quiet and free from pain.

Blumfeld (*Clin. Journal*, August 1901) apparently does not believe in the existence of ether pneumonia. According to him it is a coarse bronchitis which is induced, especially in abdominal and breast cases, where the pain of the wound and tight bandaging prevent the patient coughing up the mucus.

He states that many cases of so-called "ether pneumonia" are doubtless instances of mild pulmonary embolism, due to the detachment of a small bit of clot in a ligated vein.

Messrs Crouch and Corner read a joint paper before the Society of Anæsthetists last December regarding respiratory complications following ether anæsthesia.

In 3000 cases at St Thomas's Hospital, 2400 had ether and 600 chloroform. None of the latter developed any pulmonary trouble; ten of the former did, with one death. These ten cases were apparently in good general condition and gave no trouble during anæsthesia; they did not require an excessive amount of ether; they did not secrete an exceptionally large amount of mucus, nor did they become specially cyanosed.

Seven of these cases occurred in summer. Three of the cases developed broncho-pneumonia, the others bronchitis. Nine of the ten cases were operations on the trunk, and one was for extensive varicose veins; in each case the operation lasted a long time.

In the opinion of the authors this after effect was due to the ether primarily, and secondarily to the exposure and chilling of the patient, and to tight bandaging after the operation.

Chloroform in Heart Disease. — Huchard (*Bulletin de L'Académie de Med.*, 11th Feb. 1902) discusses the question of administration of chloroform in various forms of heart disease. In all cardiac disease, mitral or aortic, valvular or arterial, with or without angina, chloroform may be administered, though the greatest care and watchfulness are necessary. The author has allowed anæsthetisation by chloroform in over 300 cardiac or aortic cases without accident. Of these cases 49 were cases of aortic insufficiency, and 7 of angina more or less severe. He insists that small doses of chloroform should be given (drop method), and that the anæsthesia should not be pushed beyond the point where the corneal reflex is sensibly diminished.

Ether may be preferred in certain cases, but is not advised where there are much dyspnœa or pulmonary complications. Where acute pulmonary œdema is threatened it is especially dangerous owing to the bronchial secretion produced.

Like Mitchell Banks, the author believes that fatalities under chloroform are chiefly due to the fault of the anæsthetist, and urges more careful training in the administration of chloroform in hospital practice.

Hypertrophy of the Thymus and Death under Chloroform.—Laqueur (*La Tribune Med.*, March 5, 1902) and G. Peacocke (*Transact. Roy. Acad. Med. Ireland*, Vol. 19) record cases of sudden death under chloroform. In each case hypertrophy of the thymus was found with more or less general lymphatic hyperplasia elsewhere. Laqueur states that Kundrat has collected 12 similar cases. Since it has been stated that probably most of the deaths under chloroform in the hands of capable anæsthetists are due to this lymphatic condition, it is important to be able to recognise it before anæsthetisation; but there are no sure data. According to Laqueur if the lymphoid follicles of the base of the tongue and posterior pharyngeal wall are enlarged, there is certainly hypertrophy of the thymus and chloroform is contra-indicated.

The Asphyxial Factor in Anæsthesia.—Bellamy Gardner (Charing Cross Hospital) has published a small book with the above title. He describes carefully the causes tending to produce asphyxia, the phenomena which supervene in such a condition, and the necessity for their early perception and elimination. The different kinds of breathing during anæsthesia, their meaning and importance, and the various pathological conditions which may tend to produce asphyxia are fully considered, and general lines of management pointed out.

Ethyl Chloride as a General Anæsthetic.—F. E. Marshall (*Liverpool Med.-Chir. Journal*, 1901) gives his experiences with this drug as a general anæsthetic. He points out many advantages in its use, but expresses his uncertainty as to when the patient is really known to be "under." In the majority of cases the corneal reflex persists and muscular relaxation is not obtained. He relies chiefly on an alteration in the pulse and respiration. A serious objection appears to be that in females a marked tendency to sexual delusions may be produced.

The Anæsthetic in Operations on the Mouth and Jaws.—Schlechtendahl (*Munch. Med. Wochenschrift*, 11th Feb. 1902) describes a special intra-laryngeal canula, fashioned after the O'Dwyer intubation canula, for the continuous administration of chloroform or ether.

H. P. Mosher (*Boston Med. and Surg. Journal*, 23th January

1902) describes a special apparatus with a foot-bellows whereby ether vapour may be continually played on the patient's face. Neither of these special pieces of apparatus seems to present any advantage over the Junker inhaler with a mouth-tube fitted on in place of the usual face-piece.

Local Anæsthesia.—Rudolf Matas, in a pamphlet reprinted from a special number of the *Philadelphia Med. Journal* of 3rd Nov. 1900, enters very fully into the various methods and solutions used in carrying out quite extensive operations. The anæsthetic effect may be produced by: (1) paralysing the peripheral nerve endings; or (2) by "blocking" sensorial impressions in the nerve trunks; or (3) by paralysing the sensory nerve roots in the spinal cord.

He describes his special apparatus by which solutions can be evenly and continuously injected under air pressure. Illustrative cases are appended.

OBSTETRICS

SUPPRESSION OF URINE FOLLOWING LABOUR

By ROBERT JARDINE, M.D., F.R.S.E.,
Physician to the Glasgow Maternity Hospital

IN most of the text-books of midwifery this condition is not even mentioned except as occasionally occurring in fatal cases of eclampsia. The literature of the subject is not very extensive. So far as I know only ten cases have been recorded. Dr M'Kerron of Aberdeen has an interesting paper on the subject in the April number of the *Journal of Obstetrics and Gynæcology of the British Empire.* He gives full notes of two cases of his own and one of Dr Gordon's, and brief notes of three others which he has found recorded, one by Dr M'Crea, *Canadian Lancet*, vol. xvi.; one by Dr Williams, *Lancet*, 1886; and the remaining one by Dr Bond, *Lancet*, 1889. In the May number of the same Journal Dr Boxall has published notes of two more cases. Notes of a similar case were published by Dr Black in the "Glasgow Obstetrical and Gynæcological Society's Transactions," vol. i., and I myself published notes of another in the "Edinburgh Obstetrical Society's Transactions," vol. xxiii.

An analysis of these ten cases shows that four of them were in primiparæ and six in multiparæ; four of the labours were at full time and six premature, the earliest one being at the fifth month. Curiously enough, four of the children were born

alive and six dead. In one case suppression had commenced before delivery, but in all the others, except three, it came on immediately after delivery. In my case it was the third day before complete suppression came on, in Dr Black's six days, and in one of Boxall's cases about eleven days had elapsed. In seven of the cases the urine contained a fairly large amount of albumen, and in some tube-casts were noted. In the other three cases no urine was obtained for examination. The patients all showed the same symptoms, viz., retching and vomiting, pain and uneasiness in the loins, headache, coma, twitchings, and in some a convulsion just before death. In the majority of the cases the temperature was subnormal, but in a few it rose high before death, and in one it was found to be 108·6° F. shortly after death. Two of M'Kerron's cases recovered, one after four days of total suppression and the other after twenty-four hours, in which only 4 ounces were excreted. The other eight died in from three to eleven days after excretion ceased.

It is unfortunate that in only two of the fatal cases were *post-mortem* examinations obtained, in my case and in one of Dr Boxall's.

My case differed somewhat from the others in that Cæsarean section had been performed at full time for a contracted pelvis. The first specimen of urine (3½ ounces) obtained after the operation showed some evidence of carboluria. Next day 9 ounces were obtained. It was clear and contained albumen and tube-casts. During the next twelve hours 11½ ounces were passed, and in the next twelve hours only 2 ounces. The albumen had lessened. From that time onwards until the patient died three days later there was almost absolute suppression. She died comatose and had a fit just before death. There was a distinct urinous odour from her breath and also from her blood.

A *post-mortem* examination was obtained. The abdominal and uterine wounds were both healed without any evidence of inflammatory action.

The kidneys had their capsules slightly adherent, and there was considerable hyperæmia, especially in the pyramidal areas.

Microscopic report of kidneys by Dr R. M. Buchanan:—

"A section of the kidney does not at first sight reveal any striking departure from the normal. On closer examination, however, the tubules of the cortex are seen to be almost uniformly dilated. The lumen of each tubule is occupied by a finely granular material, and the epithelium appears compressed. A considerable number of straight tubules are also dilated and filled by the same material in a more coarsely granular form. There is no shredding of the epithelium and no

tube-casts are visible. The Malpighian body and blood-vessels are normal."

The pathologist was of opinion that there was nothing in the kidney condition to account for the suppression.

Dr Boxall's case, in which a *post-mortem* examination was obtained, died on the 16th day after a miscarriage at the fifth month. The miscarriage, in all probability, had been procured by drugs and the passage of an instrument into the uterus. She had almost total suppression for five days. Her urine contained albumen and tube-casts.

At the *post-mortem* examination "the kidneys were enlarged, very much congested, and showed evidence of old-standing disease of moderate degree, and also of recent acute inflammatory softening."

Dr M'Kerron's conclusions are as follows:—

1. "A pathological condition of the kidneys—probably nephritis—resulting from pregnancy, but in some cases dependent upon a pre-existing defect of the organs, congenital or acquired.

2. "A neurotic temperament. The influence of this on the renal secretion is seen in hysterical suppression.

3. "The shock incident to an undue rapidity of labour or arising from excessive pain. This seems in all the cases to have been the exciting cause."

Until more *post-mortem* evidence is accumulated one cannot come to any definite conclusions, but M'Kerron's first one would seem to be perfectly correct. As for his other two conclusions, all the cases certainly do not bear them out. In the two cases I have seen, Black's and my own, there was no neurotic element present, neither was there any shock in Black's case, as the suppression came on six days after an ordinary natural delivery, and in my case it was three days after the section was performed before complete suppression supervened. I do not think the section had anything to do with the causation. So far as I know, this has never occurred in connection with any other Cæsarean section.

In many of the fatal cases opium was given. I have seen at least two eclamptic cases die with suppression after the use of morphia. I agree with M'Kerron that opium should not be given where anuria is to be feared.

In the treatment of the condition, saline infusion seems to hold out the best hopes. It was successful in M'Kerron's case of total suppression. In my case it was tried both subcutaneously and directly into the vein after bleeding, but did no good. Hot packs, steam baths, cupping and poulticing over the loins, and various diuretics by the mouth, including diuretin, were given. The patient was also freely purged with salines and croton oil, but nothing proved of any service.

PATHOLOGY

By THEODORE SHENNAN, M.D., F.R.C.S.Ed.,
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THE Cornell University Medical College, New York City, has begun publication of Studies from the Department of Pathology. The first of the series, that for 1901, forms a fair sized volume, which contains eleven monographs and reprints, all of which are of interest, and some of which merit careful consideration.

Professor Ewing, who has recently published a book on the subject, contributes three papers on *Malaria*.

He writes with a close knowledge of the subject, based on observations of numerous cases of malaria occurring in soldiers returning from the campaign in Cuba.

He details his technique, and recommends very strongly for the preparation of blood films, a modification by Nocht of Romanowsky's stain, which, he claims, gives better results than any other. "Nocht's modification consists in the addition of a few drops of neutralised Unna's polychrome methylene blue (Grübler) to the 1 per cent. solution of ordinary methylene blue. The usual specimen of polychrome methylene blue is distinctly alkaline, and to be rendered effectual for the present purpose, Nocht found that it required neutralisation, preferably by acetic acid. This may be done by adding drop by drop of dilute 2 to 3 per cent. acetic acid till the commercial fluid polychrome blue no longer turns red litmus-paper blue above the zone coming into immediate contact with the dye. Ewing has never failed to secure a good result by the following procedure:—

"(1) To 1 oz. of polychrome methylene blue (Grübler) add 5 drops of 3 per cent. solution of acetic acid (U. S. P., 33 per cent.).

"(2) Make a saturated (1 per cent.) watery solution of methylene blue, preferably Ehrlich's rect. (Grübler), or Koch's, dissolving the dye by gentle heat. This solution improves with age, and should be at least one week old.

"(3) Make a 1 per cent. solution in water of Grübler's aqueous eosin.

"The mixture is prepared as follows:—

"To 10 cc. of water add 4 drops of the eosin solution, 6 drops of neutralised polychrome blue, and 2 drops of 1 per cent. methylene blue, mixing well. The specimens, fixed in alcohol or by heat, are immersed for two hours, specimen side down, and will not overstain in twenty-four hours. The density of the blue stain may be varied to suit individual preferences. The

above proportions need not be rigidly followed, but the polychrome solution should be accurately neutralised."

It is to be noted that this stain was described in the end of 1899, therefore long before Leishman described his modified Romanowsky's method, which gives as satisfactory results with less expenditure of time. Still Nocht's method may occasionally be of use in confirming results by other methods, and for that reason it is quoted here. It is specially useful for demonstrating nuclear changes.

He goes on to treat of the morphology of the parasite, and to discuss the significance of the changes which occur. In connection with the ring-shaped stage of the Tertian parasite, he concludes with Mannaberg and others that this form is a true ring—a form usually, but not necessarily, assumed by the parasite—and does not represent a vesicular nucleus.

He distinguishes it from the Æstivo-Autumnal ring by the following peculiarities:—

1. The nucleus of the Tertian is achromatic to methylene blue, which densely stains the nucleus of the Æstivo-Autumnal parasite.

2. The Tertian ring is coarse and irregular; the Æstivo-Autumnal geometrically regular and more delicate.

3. One or two granules of pigment are usually found in the Tertian ring; pigment is almost invariably absent from the Æstivo-Autumnal.

4. The cell containing the former is swollen, that harbouring the latter is shrunken from the moment of infection.

The subsequent development of the parasite is described in very full detail, and a summary may be given here.

The pigment becomes distinct in the actively motile parasite, and the deep red nucleus sub-divides into granules—the "distributed" type of nucleus—taking an excentric position. The parasite becomes full-grown in from twenty-four to forty hours, and appears as a pigmented rounded body with a nucleus whose chromatin is represented by minute granules surrounded by a zone of "milky" substance. After this a flow of chromatin granules and "milky" substance takes place into the body of the parasite, and the granules increase in number. These then make their way outwards in small groups, each surrounded by a milky zone, and the pigment collects in the centre of the parasite. The groups fuse to form compact nuclei, and the parasite divides up into spores, each with its own dense nucleus, which enter in their turn red cells and develop there. He does not refer to Schüffner's dots.

He finds the development of the Quartan parasite similar to that of the Tertian in all important respects, except that,

owing to the slower rate of sporulation, and tendency of this parasite to complete its cycle in the general circulation, the segmenting forms are relatively more numerous. He states that the pigment is often found in irregular partly radiating rows.

He next describes fully the Æstivo-Autumnal or Tropical parasite, its rings, crescents, flagellating forms and extra-cellular sterile bodies. He followed the entire cycle in the peripheral blood of five out of 260 cases, and lays emphasis upon the early concentration of pigment in the presegmenting stage.

He also discusses the question of plurality of species, and fails to "secure any evidence to establish any clinical or morphological grounds on which to separate the parasites of 'pernicious' malaria into two or more groups."

In crescents he finds that the granules of chromatin become smaller and less distinct as the crescents become older and larger.

The same author contributes a paper on "Conjugation in the Asexual Cycle of the Tertian Parasite." He examined a case in which there were two broods of parasites, nearly all the younger being twinned, while all the older forms were single. Extreme length and variety of amæboid processes characterised the younger parasites, this raising a suspicion that under certain conditions young Tertian twins might conjugate, producing a single large full-grown parasite. Later he observed two other cases, and by the Nocht-Romanowsky method demonstrated to his satisfaction all stages of the gradual union of the nuclei.

Dr B. H. Buxton contributes a somewhat unconvincing paper on "Giant Cells" and their signification. He firstly discusses amitotic and mitotic division of cells, and premises that amitotic division indicates a tendency to degeneration.

Some degrees nearer to degeneration are the cells in which amitotic nuclear division is not followed by cell division, the result being a continuous protoplasmic mass or syncytium containing numerous nuclei.

Giant cells being formed in this way, are syncytial in nature and contain in themselves the elements of decay. Their small size he considers due to the restraint exercised by the pressure of surrounding tissues.

He refers to the two important theories with regard to their development, that of Metschnikoff proposing that giant cells are formed by coalescence of a group of large mononuclear leucocytes which have gathered round a mass of bacteria, and that of Weigert, holding that large mononuclear cells of connective tissue or endothelial origin form giant cells by amitotic nuclear sub-division.

Following out his theory, he concludes that giant cells, for example those found in connection with resorption of bone, or in myeloid sarcoma, have no important bearing in either case; the former (myeloplaxes) are simply cells of granulation tissue which are pressed up against the bone, and, in consequence of defective nutrition, undergo imperfect cell division, and they are not active in the process of resorption; similarly, those of myeloid sarcoma develop from cells of the tumour which are pressed against the bone. As the bone is absorbed before the advancing tumour they become free amongst its cells, and lie passively in their midst, taking no part in their activity, and after a time degenerating.

His explanation of the development of the giant cell of the type found in tuberculosis appears more reasonable. These are formed in the first instance from lack of nourishment, and later suffer more or less from the action of poisonous substances upon them. If this action is great, there is a likelihood of some portion of them becoming necrosed. From such a necrosed part the nuclei recede and become arranged at the periphery. He does not consider that the multiplication of the nuclei may be due to a primary excessive stimulation rather than simply to an "interference with their nourishment by toxines."

This paper is illustrated by very fine micro-photographs taken by the author.

Dr Buxton also writes on "Benign Epithelial Tumours of the Skin," and wishes to perpetuate such terms as *akanthoma adenoides cysticum* of Unna, *syringadenoma*, *spiradenoma*, *steatadenoma*.

Akanthoma is a term applied to tumours arising from the rete Malpighii, hence, presumably, composed of prickle cells; but the cells of *akanthoma adenoides cysticum*, though derived from that layer, show no sign of "prickles," but rather a tendency to take a glandular character. Buxton thinks that the title *adenoma cytadenogenes cysticum* would perhaps be a good one to explain the nature of the growths.

The two terms following—*syringadenoma* and *spiradenoma*—conform to the more intelligible "adenoma of sweat-glands"—(*a*) tubular, and (*b*) solid, or (*a*) developing from ducts, and (*b*) from acini, and the last term, *steatadenoma*, indicates the rare —by some considered non-existent—tumour of sebaceous glands, one of which was described by Boeck.

This paper also is illustrated by beautiful micro-photographs by the author, amongst which is one of a "condyloma," which represents a tumour which in this country would rather be called a compound venereal wart or papilloma.

An important paper is contributed by Dr James C. Johnston on

"Sarcoma and Sarcoid Tumours of the Skin." He believes that pigmented sarcomata may arise in the cutis, but does not bring evidence to prove this. In normal conditions, and best in the skin of a negro, pigmented cells, possibly of connective tissue nature, may be seen in the corium, but some observers consider that these may be derived from the surface epithelium, though of this again the evidence is by no means clear.

He describes the different varieties of sarcomata met with in the skin, and furnishes excellent micro-photographs of them. Later he refers to the diffuse and circumscribed new formations which occur in the skin in leukæmia and pseudo-leukæmia. In this connection he does not discuss at all the condition known as "chloroma."

Under the term "sarcoid" tumour he describes some inflammatory new formations of the nature of "granulomata."

The last paper, by Dr Letchworth Smith, describes a method —really a modification of M'Rorie's method—of staining the flagella of bacteria with "night blue." The results, as tested by the reviewer, are not so good as those obtainable by van Ermengem's or Loeffler's or Richard Muir's methods, but the method is readily applicable by comparatively inexperienced workers, to whom a method by which they can demonstrate flagella easily gives encouragement to persevere with the other more difficult methods.

The details, as taken from Newman's "Handbook of Bacteriology," are as follows:—

Stain—

Tannic acid . . .	1 gm.
Potash alum . . .	1 gm.
Distilled water . . .	40 c.c.

Dissolve by a few minutes' shaking, or leave in the incubator over night.

Dissolve night blue (dry) 0·5 gm. in 95 per cent., or absol. alcohol 20 c.c. Mix these two solutions thoroughly, and remove the heavy precipitate by filtration. The stain will not act satisfactorily when more than a few days old, and unless used immediately must be filtered again directly before use.

"*Process.*—1. An emulsion—to very faint cloudiness—is made by carefully adding one or two loopfuls of the fresh culture to a small quantity of distilled water in a salt-cellar. Avoid scraping the surface of the agar, as every particle of extraneous material will stain and detract from the final picture. The emulsion should be used as soon as possible after making.

2. Transfer a loopful of emulsion to clean, dry slide or coverslip, spread very gently, and allow to dry in the air.

3. Special fixation is unnecessary, though it seems better to expose to a mild degree of heat for a few seconds. Hold in the fingers and *dry* thoroughly rather than *heat*.

4. The flagella stain is filtered on to the dry film and left in contact for five to ten minutes.

5. Wash carefully but thoroughly in water.

6. Apply a saturated *aqueous* solution of gentian violet for about two minutes to stain the bodies of the bacilli.

7. Wash in water, dry with smooth blotting paper, and mount in balsam.

If one wishes to obtain a background as free as possible from precipitate, as for photographic purposes, it is better to apply the night blue stain to the slide inverted as follows :—

In a Petri dish are placed a small quantity of the stain, and a match stick to support the end of the slide. When exposed to the air a thin film forms on the surface of the stain. This should be pushed aside with the end of the slide which is applied to the stain face down."

New Books and New Editions

The Causes of Death among the Assured in the Scottish Widows' Fund, 1874-1894. Reported by CLAUD MUIRHEAD, M.D., F.R.C.P.Ed., Medical Officer to the Society Edinburgh: R. & R. Clark, Limited. 1902.

THIS report deals with three distinct septennia from 1874-1894. The total number of deaths amount to 9791 ; of these the 9163 males are alone considered.

The extent of Dr Muirhead's labours in producing this interesting and valuable contribution to life assurance statistics is apparent to anyone who merely glances at the volume ; the difficulty which attended the classification of diseases will be appreciated by those who are familiar with the want of precision so frequently met with in certificates of death ; while the comments upon, and the conclusions drawn from the data furnished by the deaths under review, are the result of a ripe experience in life assurance work.

The method of the classification and arrangement of the causes of death is that which was adopted in the last report, issued by the late Dr J. Warburton Begbie in 1874.

Dr Muirhead considers in detail the mortality due to cancer and consumption.

As regards cancer, the actual number of deaths between 1888-94 doubled that between 1874-80, while the percentage was 6·889 in the former period as compared with 4·935 during the latter. The age period also gradually declined by two years between 1874-80 and 1888-94. On comparing the first septennium with the last, it was found that there was an increase of cases of external cancer to the extent of 18·89 per cent., and a decrease of 7·70 per cent. in the cases of internal cancer.

Cancer of the stomach accounts for the highest mortality of the internal cases, namely 21·68 per cent., there being little difference between the second and third periods. Cancer of the rectum, which is included in the table of external cancer, stands at the head of the list, and shows a mortality of 13·28 per cent. for the whole period, while cancer of the tongue comes next, with a mortality of 4·49 per cent. Many believe that cancer of the rectum is on the increase. Dr Muirhead's statistics show a rise of 7 per cent. during the second septennium as compared with the first, and a fall of 5 per cent. during the third period as compared with the second. There was a family history of malignant disease in 8 per cent. of the deaths from cancer.

After fully discussing the statistics, Dr Muirhead concludes that the increase in the disease is real and not apparent, as the result of improved diagnosis; that family history cannot be totally disregarded; and that, a proposed assurance should, when there is a family history of malignant disease, be accepted on the Endowment Assurance Scale at age 55 or death.

The mortality from consumption is dealt with in a very thorough manner. The disease is by no means confined to persons under middle life, the death-rate being somewhat higher between 45 and 75 than between 20 and 25.

There was evidence of hereditary predisposition in about 35 per cent. of those who died of phthisis. Dr Muirhead points out that a large proportion of the deaths occurred within five years after the assurance had been effected, and emphasises the importance of careful examination, and, in addition, attention to such points as the presence of a slight cough, dyspepsia, pulse rate and temperature, and to height and weight. He believes that while much less importance may be attached to a family history of tuberculosis than was formerly the case, it cannot be totally disregarded.

The statistics of deaths from rheumatic fever bring out the importance of careful enquiry into the history of all rheumatic attacks. Of the cases under revision only 7 per cent. showed a

family history of rheumatism, while in 30 per cent. there had been a previous attack. The average duration of life of those who died of rheumatic fever was less than one-third of their expectation. Dr Muirhead advises that all those who in early youth have given evidence of a rheumatic constitution, or who have passed through an attack of rheumatic fever, should be charged as extra, or assured on the endowment scale.

Diseases of the nervous system give a total mortality of rather more than 19 per cent. during the twenty-one years under observation, and by far the greatest number of deaths was due to apoplexy. Dr Muirhead doubts if general paralysis of the insane is really on the increase, and attributes the increase of the number of recorded deaths to the result of improved diagnosis; he only partially accepts the view that 50 per cent. of the cases are due to syphilis. We can find no mention of syphilis as a cause of other affections of the nervous system, for example, locomotor ataxia, with the single exception of one case of apoplexy; and if we turn to syphilis, there is only one death recorded from this disease, the duration of which was ten years.

Pleurisy and empyema are considered together, and we can find no reference to the view which is steadily gaining ground that these conditions are to be regarded as secondary and not primary affections. Of the cases recorded some were evidently secondary to pneumonia, others undoubtedly tuberculous, and one the result of gastric ulcer.

Among the diseases of the digestive system no death is assigned to appendicitis. In the third septennium three cases of perityphlitis are, however, found under the heading of disease of the bowels.

Peritonitis, like pleurisy, is considered as a primary affection, the average ages of the fatal cases from this cause being 59, 47 and 56 respectively. The low average in the second period is, we are told, partly due to the fact that one of the deaths occurred in a boy aged 14.

We have only been able to refer to some of the more striking and interesting facts contained in this most instructive and valuable volume of life assurance statistics. Dr Muirhead is to be congratulated upon the completion of an onerous task. We would suggest that in future reports the method of the classification of diseases be reconsidered.

The Theory and Practice of Medicine. By HENRY WALTER SYERS, M.A., M.D. (Cantab.), etc. Senior Physician to Out-Patients to the Great Northern Hospital. In 2 vols., pp. 1113. London: Rebman, Limited, 129 Shaftesbury Avenue, W.C. 1901-02. Price 25s. net.

THIS work, the author informs his readers, has been written with the object of producing a practical guide to a knowledge of the principles of medicine. Following up this idea, Dr Syers has written his book upon methods differing somewhat widely from those adopted by most authors of text-books on medicine. He has thought it unnecessary for the student to burden his memory with pathological theories, and his descriptions of morbid anatomy are generally most inadequate. The important subject of drug treatment is practically relegated to a short section at the end of the second volume. From these preliminary remarks one will rightly conclude that the book cannot be a satisfactory guide either for the student who is preparing for an examination, or to the busy general practitioner, who, as most often happens, is uncertain about some details in treatment. The book, then, as one first glances through its pages, is obviously deficient in certain important matters. Turning next to special sections of the work, and reading them carefully, we frequently find instances of what we regard as incorrect teaching. Statements are too often made positively, and are, in the absence of some qualification, most misleading. The short section on the pulse, for instance, contains many inaccuracies, and will leave both the student and practitioner under entirely wrong impressions concerning the really important points to be derived from a study of the blood-vessels. Thus the author regards intermission of the pulse as quite a different condition from irregularity, and he states that the former is the least serious of the disturbances of the heart rhythm. James Mackenzie has shown that intermission and irregularity of the pulse are really of the same nature, only in what is commonly called a "missed beat," the systole of the ventricle is not sufficiently strong to give rise to a perceptible wave in the radial artery; it is an excessively rare thing for the ventricle to intermit in the true sense of the word, so the distinction is a purely artificial one. Mackenzie has also shown that pulse irregularity may have no serious significance whatever. The statement of the author that the dicrotic pulse of enteric fever always suggests the use of stimulants in considerable quantity, is equally misleading and incorrect. The pulse at some period of enteric fever, in favourable and unfavourable cases alike, is always dicrotic. This pulse feature is a charac-

teristic one of the disease, even in children, and may sometimes be of value in differential diagnosis. There is nothing whatever unfavourable about the dicrotism; it is, indeed, a reassuring sign, for it is the diminution or disappearance of the dicrotic wave in these cases which would be the signal for vigorous stimulation. We must protest, too, against Dr Syers's opinions as to the uselessness of the sphygmograph; the instrument, when properly employed, is most valuable, and should be much more used for teaching purposes.

There are some chapters of the book that are excellently done, and we may specially mention those on Acute Rheumatism, Phthisis, Pleuritis, and Aneurysm. The practitioner who can spare time to read through the work, will find it worth his while to do so. He will now and then derive considerable pleasure and benefit from the vivid descriptions of disease, and from the original manner in which Dr Syers has treated some portions of his subject.

A Text-Book of the Practice of Medicine. By HERMANN EICHHORST. Authorised translation from the German. Edited by A. A. ESHNER, M.D., of Philadelphia. In 2 vols. crown 8vo, pp. 1218, 169 illustrations. London and Philadelphia: W. B. Saunders & Co. 1901. Price 26s. net.

THE name of Professor Eichhorst as the author of a Practice of Medicine, leads one to expect an interesting and useful work. This authorised translation from the German appears to have been admirably done, and this is a very important matter. A good translation of a work of this kind means everything so far as its success in this country is concerned, and we think the author has been singularly fortunate in having secured the services of Dr Eshner as his editor.

A work which deals only with the established facts of the practice of medicine is the kind eminently fitted for the student, and, in most respects, we think this text-book will meet the needs of the student more satisfactorily than many of those recently published. The important points in the diagnosis of disease are concisely and clearly expressed, and the descriptions of pathology are sufficient. Acute croupous pneumonia, which is now generally regarded as a specific infective disease, is, curiously enough, not included under the group of Infectious Diseases, but acute rheumatism, chronic articular rheumatism and muscular rheumatism, and also pulmonary tuberculosis, are placed in this section; the classification of these diseases is thus really a clinical one.

Dr Eichhorst recognises that the essential aim of the physician will always be to cure disease, and therefore his book is especially excellent on the subject of treatment. Few similar text-books are so good in this respect, for here the author obviously gives his readers the benefit of his extensive personal experience. Space will not allow us to do more than briefly indicate the sensible and up to date character of Dr Eichhorst's therapeutics. Although we may not always agree with his somewhat dogmatic statements, we are entirely with him in the question of adequate dosage. Thus in discussing the treatment of conditions of weakness of the myocardium, he says:—"Among heart-tonics *digitalis leaves* alone are worthy of confidence, while their substitutes (tincture of strophanthus, caffein and sodium benzoate, caffein and sodium salicylate, adonis vernalis, convallaria majalis, spartein sulphate, and others) are quite unreliable agents." In such cases where diuresis is deficient, he prescribes a powder containing 1½ grains of powdered digitalis leaves with 15 grains of diuretin. He gives one of these powders every two hours. This is the kind of treatment we should like to see recommended in other text-books of medicine; the physician would not then so often talk about the uselessness of drugs. In the use of a powerful drug like digitalis certain precautionary measures would, of course, be observed. With regard to strophanthus, we do not share the author's opinion; the tincture, prepared according to the directions of Sir Thomas Fraser, is quite as precise in its action as powdered digitalis leaves, and is in many cases to be preferred.

We may not inaptly conclude with Dr Eichhorst's views on inflammation of the cæcum and vermiform appendix. He says:—"The contention of some surgeons that appendicitis and perityphlitis are always surgical diseases is an error, as most cases pursue a favourable course with internal treatment." Most of us will probably agree with Dr Eshner, who emphasises the uncertainty of medicinal treatment in these diseases, in a footnote. But, on the other hand, we may quote the latest opinion of Sir Frederick Treves, who says that the great majority of cases of appendicitis recover spontaneously without either an operation or the formation of an abscess. Further, there is no doubt that the great majority of cases were treated by the physician and cured without operation until about twenty years ago. It is the cases of recurring appendicitis that should be treated by removal of the appendix, and this, as Treves has suggested, during the period of quiescence.

Other special features in this book may be mentioned. The subject of the Venereal Diseases is very fully dealt with, and special sections are devoted to a consideration of impotence and

sterility in the male, and spermatorrhœa. A really useful section on Diseases of the Skin enhances the practical value of a work which, we have already said, is admirably suited for students and practitioners.

Notes on Medicine for Medical and Dental Students. By W. D. WOODBURN, L.D.S., etc., Dental Surgeon to the Western Infirmary, Glasgow. Cr. 8vo, pp. 88. London: Baillière, Tindall & Cox. 1902. Price 3s. 6d. net.

MR WOODBURN has compiled this little book for the benefit of the student who has already "passed carefully through the 'text-books' on the subject," and it is intended "to reduce to a minimum the extensive field of medical literature by focussing the essential points."

The lectures of Sir William "Gardiner" and Professor Samson Gemmell, with such text-books as Fagge, Payne, Powell, Mackenzie, Crocker, Morris, Taylor, etc., form the foundation of these notes, for which Mr Woodburn modestly, but wrongly, claims no originality. The book is full of unique statements, as the following extracts will show:—"Flickering of the epiglottis may be felt by the finger." Ægophony is "V. R., with bleeding character." This is indeed a new but sad character to give to the condition. Laryngismus stridulus is "purely a neumosis." "Orthopnœa is very common, and, occurring without wheezing or any osculatory or other sign in the chest, would almost certainly indicate cardiac lesion." Hitherto most physicians, and certainly all students, have considered *osculatory* phenomena as associated with marked heart affection. "Piolomyelitis" is an interesting nervous disease, and the fact that the peripheral neuritis commences at the periphery is full of suggestion. The prognosis of "multipole" disease is bad, also that of "albetosis." "Memerer's" disease—perhaps Memory's disease is meant—is a disease of the labyrinth. The statement that hysteria is most common in women during the period of "sexual maternity" will prove of value to those interested in antenatal pathology.

Originality as regards spelling is a strong point, but the varieties are, however, far too numerous to mention. Here are a few assorted specimens given away free gratis with the book: —"Bronchialtasis," "Amphonic," "Hardaceous," "Analgeria," "Mystagmus," and, finally, the student can, if he buys the book, have his choice of "Pluræ," "Pleurisy," and "Plueritic"—he has paid his money.

With this little volume there is certainly a very pleasant

hour in store for those who have read the various text-books mentioned in the preface, reducing as it does to a minimum the extensive field of medical literature.

Les Fonctions hépatiques. Par MM. A. Gilbert et P. Carnot. Pp. 287. Paris: C. Naud. 1902. Price 5 francs.

THIS admirable little treatise of MM. Gilbert and Carnot is devoted to the consideration of the physiology of the liver. The subject is dealt with in considerable detail, yet definitely ascertained facts, theories, and the conclusions which may be drawn from experimental investigations are alike dealt with in a concise form and clear style, whilst in no part of the work is there any unnecessary padding.

The subject matter is considered in three sections: the first is concerned with the functions of the liver in general; the second treats in detail of the internal and external hepatic secretions and represents in consequence the most important part of the volume, whilst the last of the three sections deals with the functional disorders of the liver. As evidence of the fact that the work should prove of interest to every medical man, we may mention that the authors treat not only of such subjects as the glycogenic function of the liver, the mechanism of bile secretion and the physical characters and chemical constitution of bile, but that they deal with the bactericidal function of the liver, the digestive and antiseptic action of the bile, diabetes, cholelithiasis, "hepatic insufficiency," and lastly that throughout the volume the importance of all clinical evidence relative to the subject is duly emphasised.

Menstruation and its Disorders. By ARTHUR E. GILES, M.D., B.Sc, F.R.C.S., M.R.C.P., Surgeon to Out-patients, Chelsea Hospital for Women, etc. Medical Monograph Series, No. 5. Crown 8vo. pp. 100. London: Baillière, Tindall & Cox. Price 2s. 6d. net.

DR GILES has written an interesting little work upon Menstruation and its Disorders. In it he makes good use of Heape's important recent researches upon the comparative physiology of the process, and evidently agrees with him in regarding menstruation in the human subject as homologous with the period of the pro-œstrum in the lower mammals. A well-written chapter is that dealing with amenorrhœa. In it

the author rightly distinguishes between true amenorrhœa and crypto-menorrhœa, in which menstruation indeed occurs, but its products are retained on account of atresia. Oligo-menorrhœa (or scanty menstruation) and late menstruation have a chapter to themselves. Scepticism is evinced regarding the occurrence of vicarious menstruation, which is "relegated to the domain of myths."

Human Placentation: an Account of the Changes in the Uterine Mucosa and in the Attached Fetal Structures during Pregnancy. By J. CLARENCE WEBSTER, B.A., M.D., etc. Pp. 126, with 233 illustrations. Chicago: W. T. Keener & Co. 1901. Price $3.75 net.

THIS is no mere summary of recent work on the human placenta, though it includes a well-digested account of all the important observations. These are accurately reported and well arranged, and are amplified by the aid of the author's own investigations. Of these the details are given in their appropriate connections, and their exact data are shown in an excellent series of micro-photographs. In this way the facts dealt with are both adequately and clearly recorded. Of the author's judgments it is not necessary to speak in great detail, but we may note for their bearing on present-day problems that he considers the syncytium a derivative of the fetal epiblast, and that the plane of separation of the ovum at all stages is mainly in the compact layer of the decidua. Apart from the question of the phylogeny of the placenta to which a special chapter is devoted, the more purely philosophical aspects of embryology are not prominent. This is perhaps as well, as Dr Webster is less happy in his search for explanations of the mechanism of the changes that take place than he is in the narration and illustration of the facts. The book is, however, a most useful one, and English readers are specially indebted to the author for its preparation.

A Short Practice of Midwifery for Nurses, Embodying the Treatment Adopted in the Rotunda Hospital, Dublin. By HENRY JELLETT, B.A., M.D., B.Ch., B.A.O., Dublin University, F.R.C.P.I., L.M. With 67 illustrations and an appendix. London: J. & A. Churchill. 1901. Price 6s.

JELLETT'S "Short Practice of Midwifery" has met with so much success, that we hailed with satisfaction the appearance of an edition revised for nurses. We must, however, confess that we have been very much disappointed in

this work. The author seems to take it for granted that all nurses are familiar with ordinary scientific terms, as he uses them freely, without giving their meanings in plain English. To many nurses such terms as "ætiology," "dolicho-cephalic," "hydrogogue cathartic," "patella," etc., will be so much Greek, unless they possess a dictionary of scientific terms. Again, to say that "the thumb can be apposed and opposed, while the toe cannot," will merely puzzle a nurse, unless she has studied anatomy.

Besides the ordinary presentations, the author describes an anterior fontanelle, a posterior fontanelle, an anterior parietal, and a posterior parietal one. We think that the introduction of these presentations, apart from the conditions under which they occur, will be a source of confusion to nurses.

In his chapter on Contracted Pelvis, he describes how a nurse may make a diagnosis by the appearance of the patient, the history, and the symptoms; but nowhere mentions the important fact that if a nurse can reach the promontory with her fingers while making a vaginal examination, she may be sure the pelvis is contracted.

In his description of a Prolonged Labour, the author has strangely omitted the important element of time. He nowhere indicates what he would consider a safe time for a patient to be allowed to be in the second stage. She is apparently to be allowed to linger on until her temperature rises and her pulse is beginning to fail, before medical assistance should be called.

The chapter on the Puerperium is very good so far as it goes, but we fail to find any advice to the nurse as to the excluding of visitors, except for the first few hours after delivery. The teaching about asepsis, and the importance of making few vaginal examinations, is admirable, but we think he ought to have described how to give a douche properly.

The book is well illustrated, and there are many admirable points in it; but as a work for nurses, we cannot conscientiously recommend it.

A Text-Book of Obstetrics. By BARTON COOK HIRST, M.D., Professor of Obstetrics in the University of Pennsylvania. Second edition. With 653 illustrations. London: W. B. Saunders & Co. 1900. Price 21s. net.

THE second edition of Hirst's "Text-Book of Obstetrics" has followed quickly upon the first, and the work must be regarded as having gained a place for itself in the esteem of the student and practitioner. In scarcely any respect does the second differ from the first edition; but an improvement has to be noted in the addition of English equivalents of the metric measurements, although it is to be doubted whether the writer has done wisely in not extending the change to the section dealing with deformed pelvis. At any rate it is still very common to refer to the true conjugate and the external diameters of the pelvis in inches. Condensation is very evident in certain parts of the work, more particularly in the description of the preternatural labours; on the other hand, the chapter on the puerperium and its manage-

ment is full and thoroughly good. The book as a whole is warmly to be recommended.

Diseases of the Nose and Throat. By F. DE HAVILLAND HALL, M.D., F.R.C.P. (London), President of the Laryngological Society of London, etc.; and HERBERT TILLEY, M.D., B.S. (Lond.), F.R.C.S., Surgeon to the Throat Hospital, Golden Square, etc. Second edition. Lewis's Practical Series. London: H. K. Lewis. 1901. Price 10s. 6d.

THE present edition has been partly re-written, and has been brought up to date while retaining the same plan of arrangement as before. It is a practical work, clearly and concisely written, and we know no book of its size better suited to the requirements of the student.

Some Thoughts on the Principles of Local Treatment in Diseases of the Upper Air Passages. By Sir FELIX SEMON, M.D., F.R.C.P., Physician Extraordinary to H.M. the King, Royal Prussian Professor of Medicine, Physician for Diseases of the Throat, etc., etc. London: Macmillan & Co. 1902. Price 2s. 6d. net.

THIS little book consists of two lectures delivered at the Medical Graduates' College and Polyclinic in 1901, with two letters which the author contributed to the *British Medical Journal* in the course of the controversy which the original lectures gave rise to. In these pages will be found a forcible protest against the "operative intemperance" which there is but too much reason to think exists in some quarters in the present day. It is fortunate for the credit of the specialist that one so well fitted to speak with authority as Sir Felix Semon is, should come forward and candidly point out the dangerous position into which the specialty is drifting. Without imputing unworthy motives to anyone, it may be hoped that these important lectures will cause every practitioner to pause and consider carefully the grounds for every operation that he may think it his duty to recommend.

The principles of treatment laid down in these lectures are so clearly put and so valuable that we strongly recommend every practitioner to read, mark, learn, and inwardly digest them.

Atlas and Epitome of Otology. By GUSTAV BRÜHL, M.D., of Berlin, with the collaboration of Professor Dr A. POLITZER of Vienna. Edited by S. MACCUAN SMITH, M.D., Clinical Professor of Otology, Jefferson Medical College, Philadelphia. Pp. 281, with 244 coloured plates and 99 text illustrations. Philadelphia and London: W. B. Saunders & Co. 1902. Price 13s. net.

THE series of hand-atlases on the various branches of medical science which are published by Saunders & Co. are well and widely known, not only for the beauty and accuracy of the plates, but also for the moderate price at which they can be obtained. This little atlas adds another volume to the series, and one which well maintains the reputation which the others have established.

The various parts of the organ of hearing are deeply situated and their structure is on a very small scale, and it is unusually difficult to convey by means of illustrations an accurate representation of their anatomical and morbid appearances. It is therefore not surprising that the plates dealing with the membrana tympani and the deeper structures sometimes fail in giving a truthful, or at least a perfectly life-like reproduction, more especially as to colour. We can, however, say that they are equal to any we have seen and are better than many. The numerous plates dealing with the external parts, with the anatomy of the middle and inner ear, and dissections of the same are clear and correct in detail. In addition to the illustrations there are 280 pages of text giving an excellent and concise description of the anatomy, physiology, methods of examination, pathology and treatment of the organ of hearing.

The little atlas should prove useful to all studying the diseases of the ear, and helpful to those engaged in their treatment.

International Directory of Laryngologists and Otologists. Compiled by RICHARD LAKE, F.R.C.S.Eng. Second edition revised and enlarged. London: Rebman, Limited. 1901. Price 5s. net.

THIS small volume, which is neatly printed and carefully arranged, contains the names and addresses of the practitioners throughout the world who are engaged in the study and practice of laryngology and otology. As we should expect, in a country so devoted to specialism, America leads the way in numbers. It is interesting to note that the specialists in the United States

require three times as much space in this volume as do the specialists resident in the United Kingdom.

It is often convenient to be able to refer to the name of some specialist practising at home or abroad, and we think that this directory may usefully find a place in every consulting-room and medical library.

List of Books Received

From Rebman, Limited, London.

The Practice of Medicine. By James Tyson. Second Edition.

Clinical Hematology. By J. C. Da Costa, jun. Price 22s. 6d.

Diseases of the Intestines. By J. C. Hemmeter. Vol. ii. Price 25s.

Pocket Cyclopædia of Medicine and Surgery. By G. M. Gould and W. L. Pyle. Price 5s.

Diagnosis of Nervous and Mental Diseases. By H. T. Pershing. Price 6s.

System of Physiologic Therapeutics. Edited by S. S. Cohen. Vol. vi. *Dietotherapy and Food in Health.* By N. S. Davis, jun. Price 12s. 6d.

Manual of Ophthalmoscopy. By J. E. Jennings. Price 7s. 6d.

Tuberculosis, as a Disease of the Masses, and how Combat it. Essay. By S. A. Knopf and J. M. Barbour. Price 1s.

Christian Science and Occultism. By A. Moll. Translated by F. J. Rebman. Price 6d.

From J. & A. Churchill, London.

Life of St Luke. By E. Clapton. Price 1s. 6d.

Operations of Surgery. By W. J. A. Jacobson and F. J. Stewart. 2 Vols. Fourth Edition. Price 42s.

Manual of Practical Anatomy. By A. Hughes. Edited by A. Keith. Part III. Price 10s. 6d.

The Gouty at Aix-les-Bains. By Leon Blanc. Price 1s.

From Longmans, Green & Co., London.

Manual of Surgical Treatment. By W. W. Cheyne and F. F. Burghard. Part VI., Section I. Price 18s.

Essentials of Histology. By E. A. Schäfer. Sixth Edition. Price 9s.

The Earth in Relation to the Preservation and Destruction of Contagia. By G. V. Poore. Price 5s.

From Swan, Sonnenschein & Co.

Psychology, Normal and Morbid. By C. D. Mercier. Price 15s.

From Baillière, Tindall & Cox.

Clinical Lectures on Stricture of the Urethra and Enlargement of the Prostate. By P. J. Freyer. Second Edition. Price 5s.

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SEPTEMBER 1902

THE SCOTTISH
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THE PERIPHERAL THEORY OF NERVE REGENERATION WITH SPECIAL REFERENCE TO PERIPHERAL NEURITIS[1]

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IT may not be out of place to preface this paper by a brief description of the position of opinion with regard to the question of nerve regeneration. There are two theories, each of which has its supporters, and the first is the old theory which we all, I think, held, and which many of us are unwilling to relinquish.

I. The old or central theory was that regeneration occurred only from the central end of a divided nerve, the nerve fibres growing downwards into the peripheral segment, either as (1) the result of the original nerve fibres themselves growing downwards, or (2) the result of the parent axis-cylinders dividing into a number of young axis-cylinders, probably, it was thought, at the first node of Ranvier above the part of the nerve fibre damaged by the lesion (Strœbe). In the latter case the young axis-cylinders passed downwards inside the old parent neurilemma sheaths. The difficulty as to the development of new neurilemma sheaths for these fibres was overcome by the suggestion that the existing neurilemma nuclei, which had in the degenerative stage proliferated, might supply neurilemma sheaths for the new fibres. The old neurilemma sheaths merely acted as guiding structures for the rapidly growing fibres. Vanlair has even estimated

[1] Read before the Edin. Med.-Chir. Soc., July 2nd, 1902.

the probable rate of growth of the axis-cylinders in their downward course.

Unfortunately for the continued acceptance of this theory a number of cases of secondary nerve suture were performed in which sensation returned in the realm of the sutured nerve in a matter of twenty-four hours, or more generally two or three days, not very perfectly it is true, but still to a certain extent. Secondary suture, it should be explained, implies that the primary lesion occurred perhaps months, or even two or three years, before the operation, and cases of this kind, with the result referred to above, were described by Bowlby, MacCormac, Kennedy, and many other surgeons.

These cases were too numerous and circumstantial to permit of any doubt as to their accuracy, and the only explanations offered by the supporters of the central theory were the following :—

1. That after division of a peripheral nerve some axis-cylinders in the peripheral end did not degenerate, but became invisible because they ceased to stain. This implied that some of the end-organs must have a certain degree of trophic influence over these fibres. Sensation is always described as being restored earlier than motor power in the cases referred to, and therefore the sensory end-organs were believed to be trophic centres for the sensory axis-cylinders, while it was thought that motor end-organs had no such function or to a much less degree, because motor power returned so much more slowly. In support of this survival of axis-cylinders in the peripheral segment, it was stated by Marie and others that in the central segment some fibres degenerated upwards. While I have stated elsewhere [1] my belief that certain of the fine fibres do degenerate upwards for a short distance, there is no evidence of the correctness of either of the premises upon which this argument rests. In many cases degenerated axis-cylinders can be stained and quite easily recognised, and it is inconceivable that this explanation can be accepted as satisfactory.

2. Anastomosis was also suggested as being sufficient to explain the regeneration to which the rapid return of sensation is due. It might imply that the central axis-cylinders grow by

[1] *Edinburgh Medical Journal*, February and March 1897.

devious paths past the barrier of fibrous tissue, or whatever it is which prevents union of the peripheral and central ends of the divided nerve. This, however, was definitely proved not to have occurred in a number of cases, and therefore it was suggested that from the realm of a neighbouring healthy nerve, nerve-fibres might reach the affected area of the divided nerve. Such a suggestion, it is hardly necessary to remark, is extremely problematical, and absolutely insufficient to explain the cases put before us by the surgeons.

An amputation neuroma is explained according to the central theory by the down-growth of either the original axis-cylinders or else the young axis-cylinders formed by their division, and the typical tumour found so commonly following upon an amputation is due to the efforts of these central axis-cylinders to make their way downwards.

A graft, whether it is a bit of spinal cord or a bit of nerve which is used to bring the two ends of a divided nerve together, is merely a supporting structure for the rapidly growing central axis-cylinders which penetrate the graft from the central end only.

II. The second or peripheral theory is not of new inception, although of recent acceptance, as it dates back to a paper of von Büngner's in 1891, if not to an earlier writer, and has been advanced by Eichhorst, Neumann, Tizzoni, Cattani, Bethe, and amongst embryologists by the work of Beard and others, but it has never been seriously entertained until Kennedy of Glasgow in 1898, and the other day Messrs Ballance and Purves Stewart published papers which have aroused an active interest in the subject. The theory may be dogmatically stated under the following headings:—

1. The peripheral segment of a divided nerve *completely* degenerates, beginning in a matter of a few hours and being nearly complete in three or four weeks.

2. The cells which act as phagocytes for the removal of debris of axis-cylinders and myelin are in the first instance mainly leucocytes, but later connective tissue cells and neurilemma nuclei, which latter proliferate inside the old neurilemma sheaths and form a varying number of cells with large oval nuclei and granular protoplasm. The young neurilemma cells, however, soon become arranged in more or

less regular columns and begin to act as neuroblasts. Close to the nucleus of the neuroblast a young, somewhat wavy axis-cylinder is developed, which grows and soon becomes separated from the nucleus by a distinct gap, and later a delicate myelin sheath is secreted or otherwise developed, the neuroblasts eventually forming the primitive sheaths just as in a fully developed nerve fibre.

3. These young axis-cylinders, while they join together to form more or less continuous chains, do not undergo full development until they are united to the central end of the nerve. The existence of these regenerating fibres would explain the possibility of return of sensation in a matter of days or even hours, while the fact that after primary union of a divided nerve, sensation does not return until three or four weeks have elapsed, would indicate that, by that period, regeneration is sufficiently far advanced to permit of some conduction of impulses.

4. At the central end of a divided nerve, all the apparent growth of existing axis-cylinders downwards is in reality of "peripheral" formation, or, in other words, the existing axis-cylinders play an entirely passive part until they become joined on to the peripherally formed fibres; and the proliferated neurilemma cells near the distal end of the central segment act as neuroblasts just in the same way as they do in the distal segment. Thus the amputation neuroma, according to this theory, is entirely of "peripheral" formation.

5. A graft is simply a supporting structure, but instead of regeneration commencing from the central end only, it appears at both the central and peripheral ends of the graft, the neuroblasts invading the graft especially along the line of the blood-vessels.

While I have absolutely convinced myself that this peripheral theory of regeneration is correct, I am extremely unwilling to part entirely with the central; and a considerable amount of work done some years ago, and also recently, at the subject of amputation neuromata, strengthens my resolution not to discard absolutely the central theory. I may state that my conversion to the "peripheral" theory of regeneration was due to my success in getting *paraffin* sections of nerves to stain by Strœbe's method (described

below). Strœbe's method was intended by the inventor for celloidin sections, and as they cannot be cut nearly thin enough for the accurate observation necessary, the method never yielded really satisfactory results in my hands until I got sections cut in paraffin to take on the stain. I have held for a number of years that the neurilemma nucleus was trophic for the portion of axis-cylinder it shielded, because the axis-cylinders never break up until the nuclei of their protecting neurilemma sheaths have proliferated. This being so, I feel the more ready to accept the neuroblastic functions ascribed to these cells by the peripheral theory of regeneration.

The photographs which I show demonstrate the correctness of the peripheral view of regeneration, and are taken from some experimental work which I carried out some years ago in connection with nerve cell changes after section of peripheral nerves. Thereafter I purpose describing my reasons for adhering to the central theory as well as the peripheral, and then lastly to refer to the evidence I have obtained by the microscopical study of the nerves in four cases of peripheral neuritis which is in favour of regeneration as described by those who hold the peripheral theory occurring in at least a certain number of cases of that disease.

The nerves examined were fixed in Müller's fluid and hardened in alcohol in the usual way; they were embedded in paraffin because very much thinner sections can be obtained in this way. The staining method employed was a modification of that described by Strœbe. I use a saturated solution of aniline blue (in water), the specimens are stained in this for 24 or 48 hours, and the results are more certain if a preliminary procedure is carried out, viz., to dip the specimens into water to which a few drops of liquor ammonia is added. The object of this procedure is to render the specimens very slightly alkaline, and so secure a deeper and more regular staining of the axis-cylinders. After staining in aniline blue the sections are decolorised in caustic potash alcohol (a very weak solution) until they become pale brown and somewhat transparent in appearance; they are then washed in pure water till they become pale blue, and thereafter counterstained with a saturated watery solution of saffranine O. With a successful result the axis-cylinders stain bright blue, the nuclei orange

and the fibrous tissue a paler shade of the same colour. Should the myelin be even slightly granular, a change probably often an early stage of degeneration, although sometimes probably due to artefact, the granules may also take on a blue stain. In some fibres the slits of Lantermann stain deep blue; the significance of this I am unable to explain. If a specimen has not been properly decolorised, the fibrous tissue and the nuclei may stain blue, and even in some otherwise quite successful specimens a few blue stained nuclei may be observed.

Experimental Sections of the Sciatic Nerve in Rabbits.

While I have examined the nerves of a considerable number of rabbits at various dates after complete division, and where reunion was absolutely prevented by the application of silk ligatures at two parts of the nerves, I shall only refer to three experiments here.

1. Rabbit (36) killed 20 days after the operation.
2. „ (29) „ 68 „ „ „
3. „ (32) „ 105 „ „ „

In the first experiment there is no evidence of regeneration of axis-cylinders, although the peripheral part of the nerve is completely degenerated and only little fragments of axis-cylinders (which take on the aniline blue stain) are left. The neurilemma nuclei have proliferated and are arranged in columns, but no appearance of young axis-cylinders is visible (see photograph 1). In the second and third experiments there is very marked regeneration which is well seen in photograph 2. The young axis-cylinders have to some extent in Rabbit 29, and to a very marked extent in Rabbit 32, joined end to end to form long chains. These young fibres have a fairly marked myelin sheath, and this is well seen in sections stained by Weigert-Pal's method.

There is no possible explanation for this regeneration in the peripheral segment other than by the "peripheral" theory, as there is no possible communication between the central and peripheral ends of the divided nerve.

I agree with Messrs Ballance and Purves Stewart that regeneration of young axis-cylinders is not evident until at

least three weeks have elapsed, although those of my series of experiments which it was possible to use for the purpose of examining into the question of regeneration includes rabbits only. At the end of four weeks I find regeneration is so far advanced that a few young axis-cylinders stain with aniline blue, and by six weeks the process is well advanced.

As I already indicated, I do not feel justified in entirely relinquishing the central theory, and the following points appear to me to militate strongly in favour of the central theory sharing in the process of regeneration.

In the central end of a divided nerve the old neurilemma sheaths are seen to be greatly distended by young axis-cylinders, or what I might more correctly describe as young nerve-fibres with myelin and neurilemma sheaths, while this appearance, which should be equally present in the peripheral segment, were there no central regeneration, is in my specimens far less markedly seen. If this statement is correct it strongly supports the probability of the central or old axis-cylinders greatly aiding in the process of regeneration. In Messrs Ballance and Purves Stewart's monograph all the sketches they figure of markedly distended old neurilemma sheaths with young nerve-fibres within are taken from the central ends of divided nerves. On the other hand Dr Kennedy of Glasgow has figured some dilated neurilemma sheaths from the peripheral segment distended with young nerve-fibres which were unquestionably regenerated by neuroblasts. While there is nothing to prevent an old neurilemma sheath being dilated in the peripheral segment, the fact that the most obvious dilatation occurs in the central segment is most suggestive of central neurotisation.

In the second place some of my specimens taken from the central end of a divided nerve appear to show actual division of the old pre-existing axis-cylinders; they might be considered to be young axis-cylinders formed by neuroblasts and making their way upwards to join on to the old central axis-cylinders, but the specimens seem rather to favour the view that they are due to division of the old axis-cylinders. There is one other possible explanation, and that is, that the apparent two or three young fibres within the old neurilemma sheaths are formed by artefact from one old, possibly degenerated, axis-

cylinder; this however is unlikely from a careful study of the specimens.

In the third place, while I admit that to some extent an amputation neuroma is of neuroblastic formation, I cannot believe that it is solely formed in this way, because, if a large neuroma is so formed, it would necessarily mean that neuroblasts extended so far downwards, below what might be called their proper sphere of action, that the neuroblasts must be supposed to have almost acquired a malignant tendency and ought to infiltrate muscle and other neighbouring tissues.

Some years ago I rightly or wrongly described the appearance of naked axis-cylinders in the terminal part of a neuroma, and while I may be wrong in this observation I prefer reserving my opinion until I have finished my work at amputation neuromata. There seems to be no very good reason why the old axis-cylinders should not grow downwards after division, very probably under the influence trophic, and perhaps even neuroblastic, of the neurilemma nuclei.

Peripheral Neuritis.

Many cases of peripheral neuritis suggest from a close study of their symptoms and signs that a slow process of regeneration is at work; not such a slow recovery as would result from a purely central regeneration, but a regeneration occurring all the way down the affected nerve. The toxin in peripheral neuritis, whatever that toxin may be, acts not merely on the nerve cells in the cord, posterior nerve root ganglia, etc., but acts also on the nerve fibres and I believe the blood-vessels. The arteries, especially these of smaller size, the arterioles, and the capillaries are all greatly thickened, the intimal nuclei being especially proliferated to a remarkable degree, so as to interfere with the supply of blood to the area to which the vessel goes. These changes were originally described by Monakow as occurring in this disease, and associated with this vascular change I described the exudations which are so common although not constant in peripheral neuritis. I endeavoured to connect the occurrence of these vascular changes and exudations with the marked degeneration of the fine medullated fibres, which I noted as being constant in all cases

of peripheral neuritis in which the nerve fibres had degenerated to any appreciable extent at all. I might perhaps also be allowed to add that I explained the fact so commonly found in peripheral neuritis, namely, that the degenerated parts of the nerve were not always continuous but were often interrupted by a bit of nerve which was more healthy, by suggesting that the exudation might account for the more degenerated parts by the baneful pressure which it produces on the nerve fibres in its neighbourhood. This hypothesis I found was borne out by careful observation of many specimens of affected nerves examined serially.

The same vascular and exudation changes which are found in the nerves, occur to a considerable extent in the muscular and other structures in the affected limbs.

It must be remembered that peripheral neuritis is not always a process of complete nerve fibre destruction, it may be a change in the myelin sheath preventing conduction of normal impulses in a normal way, but not causing much alteration in the microscopical appearances of either the axis-cylinders, or even the myelin, although that is generally somewhat granular. This means abrogation of function without much evident pathological change, and Case IV. of the series of cases of peripheral neuritis referred to in this paper, is mainly of this type. In any case it is rare to find that all the nerve fibres have suffered in peripheral neuritis ; it is usual to find that the affected fibres are in little groups, and as I assert, the fine fibres have the greatest tendency to suffer. In the majority of fatal cases of the disease, however, there are a large number of degenerated fibres in all the nerves which are seriously affected.

While I purpose summing up my results after a brief reference to each case, I think it well to say now that it seems a very hard, nay, almost impossible task to expect a fibre degenerated more or less from end to end of a nerve to recover by central regeneration alone ; and that if there are neuroblasts which take on the function of nerve regeneration, the process of complete recovery would become much more comprehensible.

There is one matter to which I must refer here. Is it not possible that regeneration may be a process normally at work in every nerve ; and if we accept the neuroblastic theory of regeneration, may the regeneration to be presently described in

our cases of peripheral neuritis not be either simply what is met with in health, or at any rate an excessive degree of what is a normal process?

I have examined the posterior tibial nerves from a series of ten cases at different ages which were taken at random from the post-mortem room and I can find no obvious evidences of regeneration in any of the cases enumerated below. I am, of course, well aware that degenerative and regenerative processes are at work in all the tissues of the body, but certainly in nothing like the marked degree shown in Case III. of my series of peripheral neuritis, and I can honestly say that after a very careful search I failed to see any definite evidence of regeneration in the posterior tibial nerves of the subjoined "normal" cases.

Female,	A. S.	æt.	8,	died of	osteomyelitis.
„	T. S.	„	15,	„	typhoid fever.
„	J. N.	„	18,	„	acute Bright's disease.
Male,	W. B.	„	32,	„	accident, crush.
„	J. C.	„	41,	„	chronic Bright's disease.
„	W. M.	„	52,	„	septicæmia, extravasation of urine.
„	T. N.	„	61,	„	phthisis.
„	J. R.	„	63,	„	sarcoma of upper jaw.
„	W. W.	„	64,	„	severe crush, accident.
Female,	M. B.	„	77,	„	cardiac failure.

Cases of Peripheral Neuritis showing Nerve Regeneration.

CASE I. Mrs H., æt. 38, died in Ward 25, Royal Infirmary, April 8, 1894. The patient was under the care of the late Sir Thomas Grainger Stewart, and a full account of the history was published, along with Dr G. A. Gibson, in the third volume of the Edinburgh Hospital Reports, page 417.

The important facts are the following:—There was a very alcoholic history; a fortnight before admission, numbness, "pins and needles" sensation, and great loss of power developed in both arms and legs. On admission to hospital she complained of great hyperæsthesia to pressure over both nerves and muscles, numbness and "pins and needles" sensation in hands and feet. There was no obvious change in the ability to recognise either tactile or common sense impressions, and there was no delay

in the conduction or these sensations. Temperature sense was delayed and somewhat blunted. Muscular sense was found to be markedly impaired. Plantar reflexes were absent, the other skin reflexes were present. The patellar reflexes were absent. Patient had talipes equinus from birth. The flexors in the lower limbs, the flexors and extensors in the forearms, and the muscles of the hands were extremely weak. The Faradic current gave no response in the affected muscles in lower limbs, only very slight response in the muscles of the upper limbs, and this response disappeared the day after admission.

On April 5th patient became cyanosed from paralysis of the diaphragm and lower intercostal muscles. She was kept in life by artificial respiration for sixty-eight hours.

I have given a full account of the changes in the nerves and cord in *Brain*, Spring number 1897, and therefore I only intend to refer to the presence of regeneration.

The patient died just three weeks after the earliest history of sensory and motor symptoms; but as there were complaints of slightly less definite symptoms for a few days before that time, we can date the probable commencement of definite nerve lesions as being from three to four weeks.

Three weeks is the earliest period at which recognisable regeneration can generally be made out, and therefore we expected to find only the earliest regeneration of axis-cylinders present.

The cell changes in this case and the next cannot be very definitely referred to, because the cord was fixed in Müller's fluid, and no part of it was fixed in corrosive.

The right sciatic and *posterior tibial nerves* both show very early regeneration, but with marked proliferation of neurilemma nuclei; the young axis-cylinders are extremely fine and very short. Similar changes were noted in the corresponding nerves of the left side. Photograph 3 shows regeneration in the right posterior tibial nerve.

The nerve to the left gastrocnemius shows much less marked regeneration than in the other nerves to the leg muscles.

The ulnar nerves show very early regeneration. It is rather difficult to find in a whole section several undoubted young fibres.

The nerves of the arms show less obvious degeneration than those of the legs.

The fourth left intercostal nerve, while it shows proliferation of nuclei, shows no evidence of regeneration at all.

The vagi nerves show well marked degeneration with proliferation of nuclei, and also quite definite although early regeneration.

The nerves in this case show remarkably well the typical vascular changes, the marked exudation so common, I believe, in peripheral neuritis, and they bear out my statement that the fine fibres have suffered most severely. The larger nerve-fibres, especially in the arm nerves, show far more change in the myelin sheath than definite disintegration of the whole nerve fibre. The change referred to is a somewhat granular one and gives the nerve fibre a swollen appearance, and with it there is a certain amount of proliferation of nuclei. The fine fibres have, as just stated, suffered more than the others, and therefore we look for regeneration in the parts of the nerves where the fine fibres should be. The fact that the regeneration is very early, and yet that the appearances differ from anything seen in the normal nerves examined, bears out my contention that it is not a process markedly met with in normal nerves, and that it is associated with the process of repair.

CASE II. This case is also fully described in the paper in *Brain*, Spring number 1897. I shall therefore only refer to the chief changes collectively, and the nerves which show regeneration.

Mrs M., æt. 38, was admitted to the late Sir Thomas Grainger Stewart's wards in November 1896, suffering from marked paralysis of both arms and legs, difficulty in swallowing, and loss of speech. Her illness dated back for three months, but she had only been absolutely confined to bed for the preceding three weeks. The patient had a long-standing reputation for great excess in the consumption of alcohol, both beer and spirits. There was no history of diphtheria.

When the case was examined in hospital the patient was so stupid that the exact condition of the sensory functions was very difficult to determine. There was great hyperæsthesia over both the nerves and muscles of the limbs, the skin was evidently markedly anæsthetic, the skin and tendon reflexes were abolished, and the electrical changes, if not showing the complete reaction of degeneration in some of the affected muscles, showed at least an incomplete reaction in all. Death occurred from involvement of the diaphragm.

All the nerves examined showed the vascular exudation and fine fibre changes referred to already, and comparatively few healthy nerve fibres were to be found in the nerves of the limbs.

The *posterior tibials* show extremely little regeneration, but as already indicated, very marked and advanced degeneration. Photograph 4 is taken from the right posterior tibial nerve of this case.

The *left posterior tibial* really shows no regeneration at all,

while the *left internal popliteal* shows a very early and localised trace of regeneration, the region of the fine fibres being the usual, but not the only site for its occurrence.

The *nerve* going to the *seventh right intercostal muscle* showed marked degenerative changes, but no evidence of regeneration.

The *ulnar*, *musculo-spiral* and *musculo-cutaneous nerves* were examined by Strœbe's method, and all show extremely advanced degeneration and very early regeneration, the last two nerves mentioned showing far better regeneration than the ulnar.

This case is instructive because it is one with a long history, but only in the final three weeks was the patient absolutely helpless, and during that time instead of any apparent improvement the case steadily went from bad to worse. We have no right to expect much regeneration, and we certainly do not get it.

CASE III. Mrs S., died in Ward 6, 2nd December 1896, while under Dr Gibson's charge. Unfortunately the records of the ward at that time have been mislaid, and I can only give a very rough sketch from my own notebook made at the *post-mortem* examination.

There was complete paralysis of both arms and legs when the patient was admitted to hospital, but a very considerable amount of improvement occurred during her stay in the wards. She died of paralysis of the diaphragm and heart failure.

The following are the points of importance gathered from the *post-mortem* records (performed by Dr Muir).

The *body* was extremely pale but not emaciated. The calf muscles were distinctly atrophied.

The *heart*, 11 oz., showed marked fatty changes, partly degenerative.

The *lungs*, *right*, 1 lb. 7 oz.; *left*, 1 lb. 5 oz.; are both somewhat œdematous and congested at the bases.

Liver, 4 lbs. 12 oz., showed fatty infiltration.

Spleen, 15 oz., was uniformly enlarged; pulp moderately firm and pale, and showed subacute congestion.

Kidneys, *right*, 8 oz.; *left*, 8½ oz.; both show some cloudy swelling, and the capsules are beginning to become adherent and the surface very slightly granular in places.

Muscles.—Atrophied calf muscles, looked anæmic with yellowish streaks in places, the result of fatty changes.

Nerves showed nothing abnormal to naked eye examination.

Brain showed marked anæmia and slight œdema, the surface convolutions were a little atrophied and the sulci widened. The pia-arachnoid showed opalescent thickening.

Nerve cells.—The cord, medulla and posterior nerve root ganglia were examined by myself. Many of the anterior cornual cells, especially in the lumbar and the cervical enlargements, showed chromatolysis with disappearance of much of the chromatic substance, and in some cells its accumulation around the nucleus. Many of the nuclei have an eccentric position, and there are numerous cells which show vacuolation. It should, however, be stated that a number of cells are apparently normal.

The posterior nerve root ganglia belonging to the sciatic region of the cord contain many cells showing similar changes to those described above. The proportion of affected cells is about the same as in the anterior cornua of the cord.

Right sciatic nerve.—There is marked degeneration, especially in certain groups of fibres, and the fine fibres have especially suffered. The connective tissue trabeculæ in the neighbourhood of the fine fibres are greatly thickened, and there is considerable proliferation of nuclei especially in the same region, and to a less extent in connection with the other degenerated fibres. There are the same vascular changes in the arterioles and capillaries which have been already referred to. There is distinct regeneration, and most unquestionably it is due to neurilemma nuclei acting as neuroblasts. The difficulty in recognising the young axis-cylinders is due to the fact that the regeneration is best marked in the groups of fine fibres although it is by no means confined to these regions alone.

Right posterior tibial nerve.—Shows more marked degeneration but less advanced regeneration. The vascular changes are very obvious.

Left sciatic—and *left posterior tibial nerves*—correspond to the descriptions given of the same nerves on the opposite side, but the degenerative changes are rather less distinct. None of these nerves show much exudation with the vascular changes, and I might add that no case of such marked peripheral neuritis has come under my notice in which the exudation was so slight.

The calf muscles were examined and showed that the transverse striation was not so marked as it is normally, while there was distinct increase in the number of the sarcolemma nuclei.

The *median nerves* on both sides were also examined and both showed extremely marked regeneration. The degenerated fibres were similar in distribution to those seen in the other nerves of this case. Photograph 5 is taken from the right median nerve of this case.

CASE IV. D. C., æt. 50, was admitted to Ward 26 under Sir Thomas Fraser's charge on the 23rd December 1897, and died 4th March 1898.

This patient had a very alcoholic history and the main form of intoxicant was beer, of which the patient drank enormous amounts. There was a history of onset of present illness three weeks before coming into hospital.

There is not merely considerable anæsthesia below the knees, but patches of anæsthesia over parts of the trunk up to the fourth rib. Superficial reflexes are present, but the knee-jerks are absent. There is slight drop foot on both sides and great loss of control over the legs, in fact, beyond slightly bending the legs at the knees he cannot move his legs to any extent. He cannot stand and he cannot sit up in bed without assistance. There is a good deal of fibrillary tremor in the tibialis anticus and other muscles of both the arms and legs. The results of the electrical reactions were somewhat conflicting. There was partial reaction of degeneration, but the nerves reacted to a fairly strong Faradic current. Muscular sense is described as being much impaired in arms and legs.

The diaphragm acted sluggishly even on the patient's admission to the hospital. For six weeks after admission patient improved and the legs began to recover power, while there was a considerable return of sensation over the regions previously described as being anæsthetic. The diaphragm still continued to act unsatisfactorily and the patient died partly of heart failure and partly of septic pneumonia.

The *post-mortem* was performed by myself and the chief points of interest were as follows:—

Body emaciated, muscularity poor, especially of legs, the arm muscles being rather less atrophied. The abdomen was retracted.

Heart, 13 oz., was slightly fatty; orifices, etc., are fairly healthy; right heart somewhat dilated.

Lungs.—Right, 2 lbs. 14 oz. There is lobar pneumonia of middle lobe in stage of yellow hepatisation. Towards basis of lower lobe there are small areas of septic pneumonia (inspiration). *Left*, 1 lb. 6 oz., is fairly healthy.

Liver, 4 lbs. 10 oz., shows fairly marked "nutmeg" condition.

Spleen, 12 oz., was soft and diffluent—there are numerous small hæmorrhages. Appearance is suggestive of ptomaine absorption.

Kidneys show no special change worthy of note.

The *diaphragm* is very thin, soft and flabby, and of a very pale colour.

Brain, *cord* and *nerves* showed no gross naked eye lesion.

Microscopic Appearances of Cord, Ganglia and Nerves.

Cord.—A very few of the multipolar cells in the anterior cornua show the nuclei to be eccentric in position, a larger number show a distinct degree of chromatolysis, and many show vacuolation of protoplasm. These changes are best marked in the cervical and lumbar enlargements.

Posterior nerve root ganglia of cervical and lumbar regions.—Most of the cells are fairly normal in appearance, but a number show chromatolysis, eccentric position of nuclei and vacuolation of protoplasm.

In both this case and the last case I believe the affected cells and nuclei are distinctly atrophied, or rather are smaller in size than those which are unaffected. The cells in medulla and pons, and also in parts of the cortex of brain, were examined, and no abnormal change was observed.

The *nerves.*—It has not been possible to get the nerves of this case quite finished, and therefore I can only refer to a few of them.

The *sciatics* and *posterior tibials* show very marked vascular changes, and a small amount of exudation, mostly in the neighbourhood of the vessels.

The larger nerve fibres appear swollen and their myelin granular, but many of these fibres so affected show no proliferation of neurilemma nuclei, and no evidence of any disintegration of the axis-cylinders.

The fine fibres have suffered especially, but in place of as marked regeneration as I expected there is great thickening of the connective tissue trabeculæ where the groups of fine fibres once were. Some of the larger fibres are degenerated in the ordinary way, but comparatively few, and when these are found, and among the remains of the fine fibres, a small amount of neuroblastic regeneration is evident. The arm nerves showed the same changes so far as they have been examined.

The *phrenic nerves* show very marked degeneration with disintegration of myelin and axis-cylinders and proliferation of neurilemma cells. In both phrenics a very early stage of regeneration is seen, but it is by no means general throughout the nerves.

The diaphragm is extremely thin and the muscle fibres show marked loss of their normal striation with some proliferation of nuclei.

So far as I am aware regeneration of nerves, according to this peripheral or neuroblastic theory, has not yet been de-

FIG. 1.

FIG. 2.

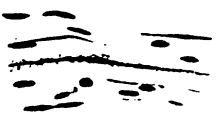

FIG. 3.

FIG. 4.

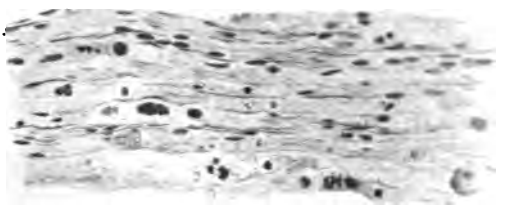

FIG. 5.

FIG. 1.—Left sciatic nerve, rabbit 36; peripheral segment 20 days after complete division. Shows no evidence of regeneration of axis cylinders, but marked proliferation of neurolemma nuclei (neuroblasts).

FIG. 2.—Left sciatic nerve, rabbit 29; peripheral segment 68 days after complete division and without possibility of reunion. Shows marked regeneration of young axis cylinders.

FIG. 3.—Right posterior tibial nerve, Case I. Shows very early regeneration.

FIG. 4.—Right posterior tibial nerve, Case II. Shows extremely early regeneration.

FIG. 5.—Right median nerve, Case III. Shows extremely advanced degeneration, and also very marked regeneration.

(*Photographs are all taken from specimens stained by Strabe's method.*)

PLATE III.—TO ILLUSTRATE DR FLEMING'S PAPER.

scribed in peripheral neuritis. It takes much careful study and close observation to recognise the early stages of regeneration, and sometimes it is almost impossible to do so, and it is only where it is fairly evident that its existence can be recognised by anyone not conversant with nerve tissues in health and disease.

As noted already the fine fibres suffer the most in peripheral neuritis, and it is in the regions of the fine fibres that we look for regeneration with the greatest certainty of finding it. I believe all the fine fibres in a peripheral nerve are medullated, and therefore there is a gap or space between the axis-cylinder and the nucleus. In the earliest stages of regeneration the young axis-cylinders are closely applied to the side of the nucleus of the neuroblast, but when the more advanced stage is reached then they become myelinated and are with difficulty differentiated from the fine fibres except by two characteristics, viz., that young axis-cylinders are more wavy in outline, the other being that there is always associated with the possibility of regeneration the proliferation of neurilemma nuclei. When neurilemma nuclei proliferate they alter in appearance from long, somewhat slender nuclei, to swollen, more oval-shaped nuclei.

There seems little object in surmising as to the exact clinical phenomena which indicate commencing regeneration, because all we can definitely say is that some nerve fibres which are only partially affected by the toxin certainly recover without regeneration; while in all in which the myelin and the axis-cylinders have become broken up and the neurilemma nuclei proliferated, recovery must be mainly dependent on neuroblastic regeneration. Return of sensory and motor functions will certainly be important indications of regeneration, but they may also be due to recovery of nerve fibres whose myelin has alone suffered from some limited and curable toxic process, whether that process is degenerative or inflammatory in nature. The number of fibres that degenerate to such an extent that neuroblastic regeneration is an essential curative process is very great in a severe case of peripheral neuritis; and therefore in all severe cases the fact that throughout the whole length of the affected nerve fibres regeneration can and does occur, and that it is not alone dependent on growth down-

wards from the cell centre, greatly brightens the horizon of hope in marked cases of multiple neuritis. As I have already said, however much one strains the imagination, it seems hardly conceivable that an axis-cylinder process can be regenerated entirely centrifugally throughout a long sensory-motor nerve without some assistance. It seems most probable that where a whole neurone is so damaged by a toxin as to lead to the destruction of the greater part of its axis-cylinder process, recovery would be quite impossible were there no peripheral efforts at regeneration to assist in the process.

I am not in a position to say much from any personal observations as to the regenerative changes in the sensory and motor end-organs, but in all probability an analogous regenerative process is at work there too.

It may be asked what happens to that part of the axis-cylinders of an ordinary peripheral nerve which is not provided with a well-marked neurilemma sheath, as there would be no possible formation of neuroblasts in these regions which are practically entirely situated in the cord? The peripheral nerves are certainly formed embryologically by ingrowth from without and not outgrowth from within, and presumably the neuroblasts are of epiblastic origin. The tracts in the cord and brain which have no neurilemma cell sheaths are formed from the central cells by outgrowth, and therefore it does not require any great stretch of the imagination to believe that in peripheral neuritis those parts of the axis-cylinders which have no primitive sheaths might be regenerated from the cells which are their trophic centres.

It seems reasonable to suppose that the toxin which affects the whole neurone, and as I contend produces more marked changes in the nerves than in the cell centres, should first be neutralised or eliminated from the cell, and that therefore from the cell centre regeneration might extend at least down to that part of the axis-cylinder which is originally of peripheral formation, and is therefore regenerated from the neurilemma cells acting as neuroblasts. On the other hand in cases in which the cell centres are practically destroyed by the toxin, recovery of function is quite impossible, although I contend that as the result of the vascular and exudation changes the degree of

nerve degeneration is no criterion of the amount of the central cell destruction.

In conclusion, I do not base my statements as to regeneration in peripheral neuritis upon the four cases I have referred to, as I have found it in the nerves of four other cases of the same disease which proved fatal, but time has not permitted me to have a full account of these cases ready.

THE TREATMENT OF SURGICAL TUBERCULOSIS[1]

By DAVID MACEWAN, M.D.,
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DURING late years an organised and determined effort has been put forth to grapple with the scourge of tuberculosis. The movement is probably without parallel in the history of medicine, in respect of the zeal and unanimity with which it has been entered into by the profession, and the wide and sympathetic interest it has excited in the popular mind. In most of the civilised nations in the world strenuous efforts have been made to give practical effect to the latest teaching of medical science on the question, and in our own country an active propaganda is at work, which seems likely to lead to important and beneficial results.

In the treatment of pulmonary phthisis men have got wearied in the search for specifics; they have ransacked all the kingdoms of nature with but little success; one remedy after another has been tried, lauded for a time, and then consigned to oblivion; the only one that has held its place through the changes of years is cod liver oil, and that mainly because of its virtue as a nutrient.

The discovery of the tubercle bacillus by Koch in 1882, and his subsequent investigations into its etiological relation to various diseases, created a revolution in the conception of the nature of tuberculosis, and filled the mind of the therapeutist with the hope that he would be enabled to carry on his work on rational and scientific lines. Accordingly, when the tuberculin illusion, which captivated the mind of the pro-

[1] Presidential Address at the Annual Meeting of the Forfarshire Medical Association on July 3rd, 1902.

fession for a time, had passed away, attention was concentrated on the indications of the new etiology, viz., to diminish the risk of infection by preventing, as far as possible, the dissemination of the organisms, and to neutralise that susceptibility of the human soil, without which they are powerless to develop.

With regard to the first of these objects, it may be noted that not long ago it was held that one of the commonest sources of infection was tuberculous meat and milk, and that the latter was largely accountable for the frequency of tuberculosis in childhood. Later inquiries render it doubtful if such a mode of infection is so frequent as was formerly supposed. The first bacteriologist in Europe has announced as his opinion that human and bovine tuberculosis are not identical, and that the communication of the disease to the human subject by meat or milk can only be of rare occurrence. Whether he is right or wrong is at present a question under investigation, but observations of a clinical nature have been published lately which go a considerable way in supporting his contention. Dr Still, taking the condition of the lymphatic glands as an index of the path of infection, found that in 269 post-mortem examinations of children under twelve years of age who died of tuberculosis, the commonest channel of infection was through the lung, and he comes to the conclusion that if the whole period of infancy up to the age of twelve be taken into account, the view that milk infection is chiefly responsible for the heavy incidence of tuberculosis in childhood is untenable.

Similar conclusions have been arrived at by other observers.

In the meantime, therefore, it appears that we must regard the respiratory tract as the main channel of invasion of the human system, and, so far as the bacilli are concerned, prophylaxis will therefore consist in diminishing the chances of their entrance by inhalation. Great importance has consequently been attached to precautions in regard to spitting, but such precautions can only be expected to meet the end in view to a limited extent.

Susceptibility of tissue, either hereditary or acquired, is of as great, or perhaps greater, etiological importance than the infecting organism.

In the discussions that have taken place during late years, there has been a tendency to minimise the influence of this second factor, particularly its hereditary form, and to regard infection as the chief element in the causation of the disease. It is undeniable, however, and the majority of writers recognise the fact, that there is such a thing as heredity of susceptibility, that there is some anatomical or physiological defect of the lymphatic and other tissues, or a lowered vitality of their cells due to the effects of the tubercular toxines upon those of previous generations, which renders them an easy prey to the ever abundant morbific germs.

Further, there are strong grounds for believing that the organisms themselves may be directly transmitted from parents to offspring. This has been proved to occur, although rarely, both in man and the lower animals, but it appears to me highly probable that it takes place more frequently than has been supposed. It affords the most rational explanation of those cases which we frequently see, of the early occurrence of tuberculosis in very young children, brought up under good hygienic conditions, but with marked tubercular histories. It is a view which is held by Senn; and Watson Cheyne in his work on tuberculosis, published in 1895, states that he is not inclined to regard it with disfavour.

Baumgarten went so far as to maintain that the bacilli may remain latent during the whole of life without interfering with function, and may pass through a generation. It is improbable, however, that they can remain free in the circulation for such a lengthened period. In whatever way they may enter, it is certain that their existence in the system may be perpetuated by their localisation in some hidden glandular or other structure, which becomes the seat of tuberculosis, and from which, at any time, a fresh infection may take place. This is shown by the frequency with which tubercular lesions are found in the autopsies of children, and also of adults, who have died of other diseases. In the Medical Institute of Munich, in 500 successive autopsies of children under 15 years of age, tuberculosis was found in 150 cases. Professor Sutherland, St Andrews University, informs me that in his large post-mortem experience he has found tuberculous lesions present in about one in three bodies examined.

advanced as to make it advisable to resort to operation at once, in order to shorten the route to recovery. After Koch had demonstrated the pathological significance of those enlargements, extirpation of the glands so affected came gradually into vogue, and the operation is now performed so frequently as to make a vast addition to the work of the hospital surgeon. In our comparatively small hospital we had 64 cases of operation in 1900, and as many as 110 in 1901. These operations as regards their immediate results are wonderfully successful. In hospital and private practice I have operated on several hundreds of cases, and have only had one death, and that was in the case of a weakly girl, where *post-mortem* examination revealed extensive and advanced disease in the glands of the mediastinum.

I feel assured, however, that operation alone is not an adequate means of treatment for such patients, but that efforts should be made, if possible, to strengthen the vitality of the tissues by constitutional and climatic measures during the whole course of the local treatment, and certainly for a period of time before the patients are again exposed to the enfeebling influences of their usual mode of life. For this purpose a sanatorium in the country for properly selected cases would be an incalculable benefit. Some might be sent at once to obviate the necessity for operation, others after operation to avert tubercular recurrence. It is a common experience that although all the affected glands have been completely removed, the patient not infrequently returns after a time with those of another area in a similar condition; and even after one or several operations the disease in the neck has been apparently eradicated, the danger to his life and health are by no means over, for he is still liable to manifestations elsewhere,—in the mediastinal glands, in the bones and joints, and, sometimes, later on, he may become the subject of pulmonary phthisis. This is borne out by the following statement of Volkmann: "That frequently a person suffers from tuberculosis of the lymphatic glands in youth, has a tumor albus or arthocace towards puberty, and dies of pulmonary phthisis in the thirties." Schlenker, as quoted by Watson Cheyne, gives statistics showing that 10 to 25 per cent. die of phthisis in from one to sixteen years; and Dr Charles A. Dowd gives a table in the

Annals of Surgery for 1899 made up by grouping three reports on the results of operation as observed several years afterwards, which is as follows:—Total number, 309; apparently cured, 65·4 per cent.; living but with local or general tuberculosis, 18·4 per cent.; died of tuberculosis, 16·2 per cent.

In the remarks which I propose to make on tuberculosis of bones and joints, I shall, first of all, call attention to the local treatment of those affections.

After the introduction of the antiseptic system, the range of operative interference in surgical tuberculosis became widely extended. That system, by excluding organisms which are nefarious allies of tubercle bacilli in the work of destruction, was conducive to the safe and rapid healing of wounds; hence, operations for the removal of the diseased parts were freely performed, and large tubercular abscesses, which used to be the dread of the older surgeons, were boldly opened and drained. The discovery of the tubercle bacillus gave an additional impetus to these procedures, inasmuch as it inspired the mind of the surgeon with the idea, that in order to cure his patient, he must extirpate completely every vestige of tissue in which these organisms were present. Although these operations frequently succeeded in arresting the local process of disease, they did not necessarily cure the patient, and they often involved mutilations which interfered with future functional ability.

During late years this *furor operativus* has sensibly lessened, and more conservative, though more tedious, methods of treatment are now largely followed. Excision of joints is now much less commonly resorted to, and in the case of the hip particularly, the weight of authority is against operation, unless in exceptional cases, and in favour of the conservative method.

Of the local non-operative measures used, there are three which at the present time are considered to be of pre-eminent value: (1) rest, aided by necessary appliances to prevent or correct vicious attitudes and relieve the part of its functions; (2) injections of iodoform and other anti-bacillary substances; (3) the method of Bier (venous conjestion).

The importance of rest when not unduly extended is appreciated by everyone, and the parenchymatous and intra-articular injection of germicidal substances is now largely

employed by an increasing number of surgeons. Many different substances have been used for the latter purpose, but the one which has yielded the most satisfactory results is iodoform. It probably acts, (1) by inhibiting the development of the organisms or lessening their virulence; (2) by neutralising their products; and (3) by stimulating cell proliferation in the surrounding parts, it produces a growth of young fibrous tissue, which tends to arrest the local extension of the morbid process. Microscopical examinations of cold abscesses treated in this way go to show that the lining membrane becomes less distinct and is gradually replaced by healthy granulation tissue. This method of treatment has more followers on the continent than in this country, and their results generally seem very good. Mikulicz, one of its warmest advocates, gives statistics showing 82 per cent. of cures.

Bier's method may be used alone, or in conjunction with injections. Used alone, the results are not so satisfactory. To carry out the conservative method thoroughly, a considerable length of time is required, and also proper general treatment. These conditions cannot be obtained in a general hospital, and hence the surgeon is frequently induced to attempt to short circuit the case by an operation.

Something more, however, is required than local treatment. To regard it as all that is necessary would be taking a very one-sided view of tuberculosis of bones and joints. Sehn has well said in his work on tuberculosis, "that the local affection in the bone or joint is, in the great majority of cases, but the manifestation of the existence of a tubercular focus in another, and, perhaps, inaccessible part of the body; and also that a person who has once been the subject of a tubercular affection of a joint, is always in danger of suffering from a local recurrence of tuberculosis in some other organ, and that even the most thorough operation cannot afford absolute protection against local relapse or distant tuberculosis."

These statements are in agreement with the views of many other authorities, and they can be endorsed, more or less fully, by all of us who have had a large clinical experience of those affections. Undoubtedly, in some cases the disease is primary, and proper local treatment may be followed by permanent recovery, but in many it is only a manifestation of the exist-

ence of another, perhaps deeper and undetectable focus, from which the poison has proceeded ; and in such, although by local treatment we may remove one source of infection, the patient is still liable, so long as his tissues are non-resistant, to an outbreak in the same or some other part.

It is evident, therefore, that general treatment is of as great or greater importance than the local, and that while carrying out the latter, whether by conservative or operative methods, we should, at the same time, by climatic and other means, seek to reduce the susceptibility to infection. In the words of Mikulicz, "the general treatment should not be made a secondary consideration, but must exert its influence equally at the beginning, the middle and the end."

It appears then from the foregoing considerations that three conditions are necessary for the effective treatment of surgical tuberculosis :—

1. The treatment should be of sufficient duration. It should not depend upon the exigencies of the general hospital, but should be continued till the condition of the patient, both local and constitutional, is in a satisfactory state. In some cases this may be months, in others one or more years. Mikulicz estimates that the average duration of the treatment in his cases is about six months—three in the klinik and three in some health resort. If the patient is allowed to pass out of supervision till his recovery is complete, he will almost certainly take a backward course. Hip disease, for instance, in many cases requires treatment extending over one, two, or three years, but in the general hospital it is quite common for a patient so affected to be discharged after one or two months of treatment, fitted with an orthopædic appliance, and going possibly to a home where the conditions of life are very inferior, he returns in course of time worse than ever.

2. The local treatment required is such as will not only promote recovery, but recovery with the best possible functional ability. It is beyond doubt that in the majority of cases these results will be best obtained by the conservative method, which should therefore have an adequate trial before operative interference is entertained. There are cases, however, where it would be quite justifiable to operate at a comparatively early period. In the knee, for instance, when the disease is so

far advanced that recovery is not likely to take place without anchylosis, arthrectomy or incision would shorten the duration of the local treatment, and would give as good a result as could possibly be obtained by the other method. In advanced elbow disease, again, when anchylosis seems inevitable, excision would give a movable elbow and a more useful limb.

3. As the patient's constitutional condition is the chief factor in the causation of his illness, the bacillus being only able to maintain its existence in presence of weakened tissues, it is essential that in addition to careful and prolonged local treatment, the patient should be placed throughout under conditions which will improve his general vitality, and increase the resistance of his tissues. He should be as much as possible in the open air, so that his appetite may be stimulated and his tissue metabolism increased, and he should have a full dietary to maintain his general nutrition. Sea air has long been considered preferable in these cases, and the best results appear to be obtained under its influence. In France, where the sanatorium treatment of surgical tuberculosis has received special attention, all the institutions are on the coast, and Dr Calot states that the patients seemed to get on better when the hospital, with which he was connected at Berck, was removed from an inland position to the sands.

The question now arises, how the benefits of climatotherapy can be obtained for that large class of our hospital patients who are the victims of those surgical tubercular affections.

The ideal method would be that of a thoroughly equipped hospital at the seaside, or in the country, where the treatment could be carried out from beginning to end under the direction of a medical officer competent to undertake both general and surgical treatment. An hospital of this description was founded at Margate in 1791, but nothing further was done in this country till quite recently, when steps were taken to erect an hospital of 200 beds on the slopes of the Dee near Liverpool. On the Continent, however, more progress has been made. The first hospital was founded in Italy in 1841. In 1869 the great hospital at Berck-sur-Mer was established by the municipality of Paris, and at the present time there are fourteen sanatoria on the coasts of France. In Germany and Austria there are also a number of similar institutions.

A few months ago I had an opportunity of visiting some of the marine hospitals at Berck. The largest is the Parisian Hospital, maintained by the municipality of Paris, which has accommodation for over 1000 tuberculous children. Dr Menard, the chief, told me that among these there were 200 cases of hip disease, 200 cases of Potts' disease, and 100 cases of rickets. He follows the conservative method with great success. He has few operations for such a large hospital—only three or four a week—and the results are much better than those obtained in the hospitals of Paris. I was much impressed with the work of Dr Calot at the Cazin Hospital. His motto is, "that in a closed tuberculosis, cure is certain; but if it is opened, or opens spontaneously, a portal is thereby formed through which death frequently enters." His local treatment consists principally of anti-bacillary injections; he takes great pains to preserve the movements of a joint; and he uses plaster appliances to prevent or correct vicious attitudes.

In both the hospitals I have mentioned, although great importance is attached by the surgeons to the local treatment employed, they also consider that their success is largely due to the good climatic conditions, and to the duration of the treatment.

An alternative system to that which I have just mentioned, would be to have a sanatorium in the country connected with the General Hospital to which suitable cases might be drafted as early as possible, and where local treatment, if required, could be carried out either by the surgeon originally in charge, or by one resident at the place. To such a sanatorium the following classes of cases might be sent:—selected gland cases; cases of hip disease; of disease of other joints, either for conservative treatment or to recruit after operation; Potts' disease; and selected cases of multiple tuberculosis.

The treatment of these tubercular affections in the general hospital alone, is in general unsatisfactory to the surgeon, and does not give full justice to the patients, and climato-therapy carried out according to either of the systems I have indicated would be a valuable addition to our resources, and would enable us to obtain better and more permanent recoveries. We cannot of course expect, and we need not promise, sensational benefits. In the crusade against con-

sumption, great injury has been done to the cause by the reckless and unguarded utterances of some of its advocates. In moments of fervour, statements have been made in the press or on the platform which are not words of truth and soberness, and are not likely to be justified by results. We may justly hope, however, to be able to check more frequently the development of tuberculosis in its early stages, to ameliorate suffering, to secure more perfect and permanent cures, and to render fit for the battle of life many who would otherwise be maimed and crippled weaklings.

It is greatly to be desired, that with the present movement against consumption, there should be associated one for the equally necessitous cases of surgical tuberculosis, for the same principles of treatment are applicable to both. There are indications that the profession in this country is awakening to the importance of such a development, and it is to be hoped that before long adequate provision will be made to place the open-air treatment within reach of the poor for both forms of this terrible scourge. It is a form of treatment which will never become obsolete; other methods may come and go but it will remain, for its principles are unassailable, and their practical application can never cease to be essential.

It is by the aid of private benevolence that we can ever hope to carry out this great and important work, and in our own city, so well known for its enlightened philanthropy, there are many I feel sure who would give it their active support as soon as they became convinced of its necessity, and of the immense benefits it would yield.

HÆMORRHAGE DURING THE LATER MONTHS OF PREGNANCY AND EARLY STAGES OF LABOUR[1]

By ROBERT JARDINE, M.D., F.R.S.E.,
Senior Physician to the Glasgow Maternity Hospital

BEFORE taking up the subject with which we are to deal to-day I wish to tender you my sincerest thanks for the honour you have done me in asking me to open the first conjoint dis-

[1] Read before the Edinburgh Obstetrical Society.

cussion of our two Societies. We the Fellows of the younger Society of the West, gladly avail ourselves of the opportunity of meeting you to-day, and we trust that alternate meetings may be arranged for in the future. Whatever jealousies may exist between the two cities, we are at one in our endeavour to advance scientific obstetrics, and nothing but good can come from an interchange of views.

Personally I undertake my task with considerable diffidence when I remember that I am about to lay my views before men who not so many years ago taught me all that I knew about obstetrics when I passed from my studies in the University of Edinburgh into a wider field of experience in practice. Since then I have learned much and have perhaps had to unlearn just a little of what was imparted to me in my student days. As a field for practical experience in obstetrics there is no place in the United Kingdom that can equal the Glasgow Maternity Hospital. As I have been fortunate in being on the staff for 10½ years, 5½ of these as a full physician, my experience has been both wide and varied. In the past we have been hampered for want of room and unable to properly utilise the material for teaching, but very soon this will be a thing of the past and I look forward to seeing a flourishing School of Obstetrics worthy of the second city of the Empire within a few years.

To deal adequately with the subject of Hæmorrhage during the later months of Pregnancy and early stages of Labour would take up more time than I have at my disposal, so I shall try to make my remarks as brief as possible and confine myself almost entirely to the practical question of treatment.

Unavoidable hæmorrhage which arises from the separation of an abnormally situated placenta, that is, one entirely or partly attached below the retraction ring, I shall first consider. It would be interesting to discuss the etiology of this condition but time will not permit. As soon as dilatation begins separation must occur, and separation of the placenta means the opening up of sinuses and hæmorrhage. In the central variety the entire placenta must separate and therefore the hæmorrhage will be very severe. In the lateral variety the greater portion of the placenta must separate and the hæmorrhage will be severe; while in the marginal variety, where only a small portion of the placenta is below Bandl's ring, the

bleeding will not be great. This latter variety, I believe, exists much more frequently than is generally supposed, and it is the cause of the comparatively slight bleeding which not unfrequently occurs in the early stages of labour.

Treatment.

If the first attack of bleeding occurs before the fœtus has reached a viable age I think one should try palliative measures unless the loss is very severe. Absolute rest in bed with perhaps an opiate and attention to the bowels and diet is all that is to be done; styptics are of no use. The patient and her friends must be warned that if bleeding recurs they must notify you as quickly as possible. Unfortunately women are so accustomed to large losses of blood that they are not easily alarmed and they may delay sending for you until it is too late. I have known this happen more than once even after the patient and friends had been warned.

If the fœtus has reached a viable age and the bleeding is at all severe, prompt treatment should be adopted to check the hæmorrhage and get the uterus emptied.

To check hæmorrhage the most efficient method is by means of plugs. If the os is not dilated at all or only slightly dilated, the vagina should be firmly plugged after it has been carefully cleaned, The cervix should be plugged first if it will allow of this. A properly inserted plug will control the hæmorrhage, but to be effectual it must be packed in so as completely to fill the vagina; Barnes' or Champetier de Ribes' bags may be used. The latter is a most effectual plug, but by the time the cervix is dilated sufficiently to insert it you can make use of plugging from above by doing bipolar version and bringing down a leg. For controlling hæmorrhage the breech of the child is the best of all plugs, so that in all cases where there is sufficient dilatation of the cervix the leg should be brought down after bipolar version in a head or transverse case, or hooking the leg down in a breech case. The vaginal plug not only controls the hæmorrhage but also assists dilatation. The plug should be removed in a few hours and as a rule the os will be found sufficiently dilated to allow of the bringing down of a leg. If it is not the plugging may be removed.

Once a leg is brought down the hæmorrhage will be checked

by keeping up gentle traction. It is now that a mistake is unfortunately sometimes made, especially when the child is alive. I am a firm believer in the rights of the unborn babe, but in a case of placenta prævia the mother's rights are paramount and there must be no hastening of delivery in the interests of the child. In an ordinary case, under certain circumstances, the head may be dragged through a partially dilated cervix to save the child's life, but this should never be done in a case of placenta prævia. A torn cervix in an ordinary case can be dealt with without any particular risk to the patient, but in a case of placenta prævia the tear is sure to cause excessive hæmorrhage and probably death. Therefore when the cervix is not dilated to allow the head to pass without laceration you must wait patiently, keeping up gentle traction on the leg and massaging the abdomen to stimulate uterine action.

In cases where the os is fully dilated, delivery should be effected at once by version or forceps. If it is a central form the hand must either be passed through or round the edge of the placenta. Stripping off the placenta as far as one can reach is useful before turning, as it allows the cervix to dilate more easily and the pressure of the breech will close the sinuses. In the marginal variety you may rupture the membranes in a head or breech presentation and stimulate the uterus by friction. The pressure of the presenting part will stop the bleeding and you may allow the labour to finish naturally.

When the child is born, if the placenta does not come away at once, it should be removed. I have several times found the upper part of it firmly adherent. If there is any post-partum bleeding, the best way to control it is by pressure. Ergotin should be given hypodermically. Pass the hand into the posterior fornix, then grasp the uterus through the abdominal wall with the other hand and jam it between the two hands. A hot intra-uterine douche will do good by causing retraction of the upper part of the uterus, and thus lessening the blood supply to the lower uterine segment, but it may do harm by washing the clots out of the sinuses. A hot douche is usually given, but it has its drawbacks. I have seen profuse bleeding come on half an hour after delivery when a hot douche was given. There had been none from the time of delivery and it

began as soon as the douche was commenced. If there is any tendency to post-partum hæmorrhage I invariably plug the uterine cavity, cervix and vagina. Of late I have been using a douche of 30 grains of supra-renal gland to the pint, and it seems to have a good effect in post-partum hæmorrhage.

Before I pass from the subject of unavoidable hæmorrhage I must say a word or two on the subject of Cæsarean section as a method of treatment. The late Lawson Tait was, I believe, the first to practise and advocate this procedure. Dr E. Gustav Zinke, Professor of Obstetrics and Clinical Midwifery in the Medical College of Ohio, in a paper in the *American Journal of Obstetrics and Gynæcology* for October 1901, strongly advocated the proceeding, and in support of his opinion quoted all the cases which had been reported up to that date, viz., eight. Of these eight cases, six were subjected to ordinary Cæsarean section and two to Porro's operation, and five mothers were saved and six children. Of two of the fatal cases he says they were hopeless when operated upon, and therefore should not be counted; but even taking the death-rate at one in eight, I fail to see any justification for the operation when the death-rate in properly managed cases is not more than five per cent. or one in twenty. I am perfectly willing to admit that Cæsarean section will give a better chance to the child, but the mother should not be subjected to any extra risk in the interests of a premature child. I am not surprised that a brilliant surgeon like the late Lawson Tait should have advocated this method, especially as by his own statement he seems to have considered the death-rate under ordinary methods was something like fifty per cent., but I cannot understand a practical obstetrician doing so. The condition is one which has to be treated in most cases by general practitioners and under conditions where abdominal section is out of the question. I therefore have no hesitation in condemning the operation.

Accidental Hæmorrhage.

In this condition we may have to deal with external or internal hæmorrhage, or, in some cases with the two combined. In the external form if uterine contractions are at all active, rupturing the membranes and keeping up uterine action by massaging the uterus or compressing it by means of a tight

binder is usually all that is required; but if the bleeding continues, steps should be taken to dilate and deliver by turning or forceps. In severe cases the only method of stopping the hæmorrhage is to get the uterus emptied. The Rotunda school is very strong in urging the use of the plug in all cases of the external variety. They maintain that this is the best method of treatment, and that there is no risk of converting an external into a concealed hæmorrhage. They say that as soon as the pressure within the uterus is raised above the blood pressure the hæmorrhage will cease, and that with a normal uterus this very quickly occurs when the blood is dammed back by the vaginal plug. I am quite willing to grant that, but I maintain that we rarely have a normal uterus to deal with except in those extremely rare cases where the placental separation is the result of a severe accident. The term accidental hæmorrhage is somewhat misleading, as we do not often have anything like an accident to account for the bleeding. The fact that the placenta has separated goes to show that the uterus is not normal. If fairly strong uterine contractions are occurring, then the plug may be used with safety; but, if there are no contractions, the danger of converting an external into an internal hæmorrhage is very great. I have seen one case in which this happened. The patient was brought into hospital in a moribund condition with the uterus distended with blood almost to the bursting point.

In severe cases I believe safety lies in dilatation and emptying of the uterus as soon as possible, so as to get good retraction. Dilatation can be most quickly and effectually done by means of Champetier de Ribes' bag or the hand. Care must of course be taken not to tear the cervix. As soon as the child is born the hand should be passed into the uterus to clear out the placenta and clots. Ergotin should be injected at once and a hot douche given. If post-partum hæmorrhage continues, the uterine cavity and vagina should be very firmly plugged. Supra-renal extract may be injected into the uterus or the plug may be wrung out of it. A saline infusion should be given if there has been much bleeding or when there is great shock. I usually get an assistant to give the infusion while I am delivering the patient.

The most fatal of all forms of hæmorrhage, however, is the

concealed variety. If the uterus is very much distended, the outlook for the patient is exceedingly bad. Rupturing the membranes in such a case will merely precipitate matters, as the evacuation of the liquor amnii will only make more room for blood to be poured out. Delivery by accouchement forcé does not hold out much brighter hopes if the bleeding has been severe. I have unfortunately seen a good many cases of this kind, and the results from accouchement forcé have usually been disastrous. Removal of the uterus by Porro's operation has been advocated and has been practised successfully, and if one is in a position to do the operation, I certainly think it ought to be tried. These bad cases are rare, and they would be rarer if we were more on our guard to detect the condition early. I remember the first case of this kind I ever saw puzzled me somewhat. There was no external bleeding, but the patient complained bitterly of pain of a continuous nature in her abdomen. I do not think that in books sufficient stress is laid upon this symptom. If you are able to recognise the condition early, do not wait, but at once proceed to dilate and empty the uterus before the patient has lost sufficient blood to bring about collapse.

Hæmorrhage in the Early Stage of Labour.

This may be due to the separation of a normally situated placenta, but as I have already stated, I believe that in most cases it is due to a slight form of placenta prævia. Usually the only treatment necessary is to rupture the membranes, and get the uterus to contract well. In some cases, however, a much more serious condition may be present, viz., a commencing spontaneous rupture of the uterus. It is impossible to guard against this, and there is no means of diagnosing the condition until the rupture has occurred. The treatment then will be abdominal section and removal of the uterus.

Recently, I had to deal with rather an unusual form of hæmorrhage in the first stage of labour, viz., a very large hæmatoma of the vulva. It developed shortly after the onset of labour, and was so large that it blocked the passage of the child. When the second stage was reached a free incision was made, the clot turned out, and delivery effected by forceps. I then stitched the cavity from the bottom with a continuous

catgut suture, which effectually controlled the bleeding. It healed completely.

In this short epitome there are many points which I have refrained from dealing with, but I trust they will be taken up by subsequent speakers.

ON A CASE OF JEJUNAL FISTULA[1]

By HENRY M. CHURCH, B.Sc., M.D., F.R.C.P.Ed.

ALTHOUGH there are several cases of intestinal fistulæ on record, few of these are associated with the jejunum. Indeed it is only since Billroth in 1881 showed that pylorectomy was possible, that jejunostomy has been attempted. That attempt was notably made, and, but for an accident nine days after it, successfully made as far as the operation and results were concerned, in a case of Dr Golding-Bird's, and published in the *Transactions of the Clinical Society*, November 1885. I shall very shortly refer to it as prefatory to my own case. In this case, a man 46 years of age, jejunostomy was performed to relieve pyloric obstruction due to malignant disease. Dr Golding-Bird satisfying himself that, from fixation of the organs, the case was not one for pylorectomy, performed jejunostomy for the man's relief. Being unable to carry out a curative measure, he decided upon what he thought would be a palliative one. The opening, close to the beginning of the jejunum, was large enough to admit a No. 12 catheter, through which, by means of a funnel, a semi-fluid meal was at once administered after the operation. On entering the bowel the catheter was passed to the right towards the ileum, no attempt being made to pass it to the left in the direction of the duodenum. The feeding by the mouth was stopped, and after the food had been given by the fistula, an iodoform pad was strapped over the wound. Neither on this nor on any subsequent occasion was there any regurgitation of food from the wound. As the patient only lived for nine days, however, there was insufficient time to feel sure that regurgitation would not have occurred. In the light of the case I am about to record this point of non-regurgitation in its manifest relation to

[1] Read before the Edin. Med.-Chir. Society, July 1902.

the small size of the wound is of interest and importance. Before passing from Dr Golding-Bird's case, I should like to refer to a severe attack of indigestion coming on after the patient's third meal of from 15 to 20 fluid ounces, and lasting ten minutes. It throws light on similar pains of indigestion which occurred in my own case. "It began," Dr Golding-Bird says, "immediately after the food was given, with flushing of the face, a feeling of sinking, the pulse rose rapidly, and he lay back on the pillow with the eyes closed, and sighed at intervals; the face became deeply suffused.

"This attack of indigestion is extremely interesting: the food was being administered at once into the jejunum away from the duodenum, and the attack never failed to appear after each meal, though with varying degrees of severity, during the next two days; it did not cease until the bulk of the food was diminished. There can, I think, be little doubt that it was induced by the over-distension of the upper part of the small intestine; and it suggests that some cases of indigestion or dyspepsia met with by physicians may not be due so much to faulty function in the peptic glands or pancreas, as in an irregular action of the pyloric sphincter, admitting food from the stomach into the duodenum with undue rapidity. The rational treatment of such cases would lie in the regulation of the pyloric action—however that is to be accomplished—rather than in the administration of pepsine and pancreatic ferments."—*Clinical Society Transactions*, vol. xix. p. 74.

Such is Dr Golding-Bird's explanation of some forms of dyspeptic pain. There is no doubt that after operation in the immediate neighbourhood of the pylorus or duodenum, the nerve reflexes are necessarily interfered with, and such neuroses as pyloric incompetence on the one hand, and painful pyloric spasm on the other, may be easily set up in connection with the introduction of food under unnatural conditions. In Dr Bird's case all food was passed directly into the jejunum, and with satisfactory results, when given in small quantities and when directed from the duodenum. In the following case food was administered solely by the mouth, some of it being discharged from the jejunal wound, giving the patient great distress, and some of it passing on into the bowel.

Miss L., aged 46, underwent operation for acute obstruction

of the bowels in 1884 and died in 1892. During these eight years she had a fistulous communication with the upper part of the bowel, and suffered great wretchedness from this condition, especially from a digestive action on the skin occasioned by constantly outflowing pancreatic and biliary secretions. I regret that I neither saw the case at the time of the operation nor quite up to the time of her death. The short notes I have were taken during the fifteen months I attended her just preceding her death. While I was away on holiday she died suddenly and unexpectedly, before I had made as full a record as the unusual nature of the case demanded. For the same reason there was no autopsy, which was much to be regretted. Physiologically considered, therefore, the data are not definite enough to be of value; but from a clinical and pharmacological point of view, the phenomena observed are such as should be recalled, even after the lapse of ten years. In a letter which I received from the late Dr Thomas Keith some years after the operation, he says: "When I saw Miss L. she had stercoraceous vomiting, and was on the point of dying. I opened the abdomen, and found a band constricting the small intestine rather high up. This I divided, and also another band, and found the intestine for 6 or 8 feet below quite narrow and full of contractions and bands. It was nearly dark, and instead of removing 6 or 8 feet of intestine—it was no use—I opened the bowel in the lowest distended portion, and fixed it in the wound. There was nothing else to do. I advised against any attempt to close the opening on account of the narrow state of so much intestine. Ever since the operation there were some bowel contents got through, and the rectum was washed out once a week. I have not seen her for several years, but I suppose she keeps *in statu quo*. There was a lot of trouble for some months from the skin of the abdominal wall getting digested by the pancreatic fluid, which escaped in great quantity." This is Dr Keith's short account of the operation. It would appear that there had been no after attempt to close the fistulous opening. Seven years after this operation I, for the first time, saw the patient. She then had an opening, which could admit the point of my finger, communicating with the bowel just above the umbilicus, from which there issued, more or less

constantly, the digestive fluid. As it flowed over the skin it was generally clear like water and odourless, but not of the slimy, syrupy character ascribed to the pancreatic secretion from a very recent fistula. Occasionally there was a flow of green bile, which, like the other, caused a burning pain about the wound. Over a large area round about there was acute inflammation of the skin. The position of the opening a little above the umbilicus, together with the character and time of the discharge, seem to locate it as jejunal.

With the aid of an intelligent nurse, who had been with her from the beginning, and carefully testing their correctness myself, I recorded a few details of her case, which I now bring before your notice.

Morphia.—Prominent in the case was the invaluable use of morphia. As the nurse said, it used to feed her more than any natural food. Latterly she took as much as 300 drops of solution of morphia in twenty-four hours. It dried up her wound, raised her spirits, and gave her sleep. When it did not dry up the wound, it seemed not only to diminish sensibility, but actually to deprive the pancreatic discharge of its irritating property, as evinced by its diminished action on the skin. Its effects varied with the quantity taken. This is in accordance with the pharmacology of the drug. In large, or even moderate doses, it lessened peristaltic action and caused constipation. I did not make out whether in small doses it increased the peristalsis and had a laxative action. As, however, this property is made use of in cases of constipation due to reflex irritation starting from the ovary, or occasioned by say a renal calculus, it was given in this case in small doses, with the view of lessening the pain in the wound, a possible cause of reflex constipation.

Morphia relieved her also in diminishing the reflex excitability of the nerve centres which regulate secretion of the saliva. This was very manifest in her case. With this anti-sialic action there was also diminished flow from the fistula, the pancreatic flow appearing to be generally in proportion to the salivary flow. As a consequence of this dryness of the mouth she suffered much from thirst. She was always thirsty, but feared to drink fluid to alleviate the condition, knowing the painful consequences of the increased gastric and pancreatic flow which

the taking of fluids always caused. This flow is in keeping with the view that water is not absorbed by the stomach.

Citrate of Caffeine.—She suffered frequently from headache, which was generally relieved by from 3 to 5 grains of citrate of caffeine. This drug had the opposite effect of morphia in this respect that it always greatly increased the flow from the fistula. It increased also the salivary secretion. In most points caffeine seemed antagonistic to morphia. Lauder Brunton says that it has little action on the peristaltic movements of the intestine, but that it causes the intestinal veins to become much dilated and appears to cause hæmorrhoids. This it does in virtue of its property of first constricting, and then dilating the arterioles of the body, due principally to its action on the muscular coat and slightly to its action on the vasomotor centres (Lauder Brunton's "Pharmacology," p. 871). In large doses caffeine acts as a gastro-intestinal irritant. This my case quite corroborated. In observing its action I came to the conclusion that caffeine was a medicine only to be given in small doses.

Alcohol.—Alcohol in whatever form administered always increased the flow and irritated the wound. When taken into the mouth it caused considerable reflex secretion of saliva. Dr Beaumont, in the classical case of the young Canadian, Alexis St Martin, has shown that when alcohol was taken into the stomach in small quantities it has a similar action on that organ, causing increased vascularity and increased secretion. For these reasons alcohol had to be entirely denied her as a stimulant.

Rhubarb.—Regarding pharmacœpacal rhubarb, I have a note to the effect that in small doses it quite stopped the discharge for three or four hours, and then it (the rhubarb) came away from the wound and could be both seen and smelt. She always said that rhubarb "was cruelly sore on the wound." This was probably due to the irritating substance chrysophanic acid. Though thus painful in one stage of its action she derived benefit from an occasional dose. Rhubarb is said to quicken the peristaltic action of the duodenum and small intestine, thus preventing the absorption of the secreted bile. My patient's appetite and general condition were improved by it. Rhubarb is a sialagogue. It is therefore difficult to understand how

for so many hours it "quite dried up the wound," for with the exception of this drug it was always noticed, in our limited field of observation at least, that any stimulant of saliva was speedily followed by an increase in the distressing discharge from the fistula. We must suppose, therefore, that before reaching the fistula the powerfully astringent influence of the rheotannic acid of the rhubarb must have come into play. Its initial action appeared to be to check exit from the stomach and from the pancreatic and common bile-ducts. To our patient we gave it in small doses as a tonic and astringent, and in large doses it cleared away mucus and bile from the intestinal tube, the chrysarobin or chrysophanic acid which probably was one of the factors in paining the wound, causing also increased peristalsis, and acting as a purgative.

Castor oil.—Castor oil was frequently taken by the mouth as an aperient. A large part of it emerged from the fistula in from one and a half to two hours. It was quite unirritating to the wound but increased the flow from it. Other aperients were tried, but it was the only one which did not pain the wound. I may observe here that the stools either from aperient medicine or from enema were pale, but not at all offensive. They indicated that all the digestive ferments had been at work. An enema was employed once a week to clear the lower bowel. It had the disadvantage, however, of increasing the flow from the fistula. If it were administered in the morning the nurse reported that it flowed from the wound all day and far into the night, so that she had often to remain in her chair till three, four, or five o'clock the following morning. It was interesting to note that if castor oil were added to the enema the globules of oil were seen copiously emerging from the fistula some hours afterwards. There seemed to be on these occasions a complete antiperistalsis. This circumstance impresses one with the desirability of reminding the nurse to use boiled water in administering an enema, a precaution which is not always attended to. Various antiseptic substances are used in irrigating the colon. With an antiperistalsis such as this these may evidently be carried far up into the small intestine and dangerous absorption be the result. On the other hand, desired absorption of food or medicine might be effected in this way. With this hope our patient was treated dietetically

by enemata, but it was with less comfort than when she swallowed her food.

Any emotion, and this was a marked feature in her case, at once hurt the wound by increasing the flow. There never seemed to be decreased secretion from this cause. Nor was there any marked effect on the bowels below the wound, either way. Cold weather affected her much in the same manner. consequently she was always kept in a temperature of from 70-80°.

As regards her *food*, years of observation showed that foods rich in proteid substances were the most suitable for her. All the time that I attended her she had nothing else than white meat pounded to a cream, and mixed with bread crumbs. This she took warm every three or four hours. She could take nothing cold. Before meat cream became her only diet, many different foods had been tried in the early part of her illness. Albuminous food was found to support her best and to keep her most free from pain. The nurse specially reported regarding the distress that vegetable diet occasioned. Strawberries made their appearance from the wound unaltered. However carefully selected and cooked, vegetables were undigested and came through the fistula with a specially hot and painful discharge, which caused not only the margins of the wound, but also the surrounding skin, to bleed. A probable explanation of this effect on the skin may be that, as the amount of proteid matter is less in vegetable than in animal food, the trypsin of the pancreatic fluid would not be so fully required in peptonising proteids. The overflow on the skin would therefore contain more of the proteolytic ferment to digest it. Vegetable food, moreover, increases the acid fermentation in the intestines, and so hinders the action of trypsin and the other pancreatic ferments which act best in an alkaline medium. The acid chyme, being in a hyperacid medium, might not be properly neutralised, and so too would be a factor of irritation in passing through the fistula and upon the skin. Had the fistula been lower down the gut it is probable that the effect of the discharge would have been less. Lower down there would have been established a healthy readjustment of the digestive forces and reactions.

This subject of intestinal acidity, which has an important bearing on all intestinal questions, has been fully taken up by Dr Allan MacFadyen. In his exhaustive research (*Journal of Anatomy and Physiology*, vol. xxv., p. 395) into the chemical processes in the small intestine of man in a case where the food mass, after it had been subjected to the action of the mucosa of the whole small intestine, flowed out of the mouth of a fistula at the very end of the ileum, instead of passing into the large intestine, made the important observation that the contents of the small intestine in its entire length, and under any diet, have an acid reaction, and that alkaline reaction first begins in the large intestine after the food has passed through the ileo-cæcal valve. He gives experiments to show that the acid reaction of the food mass has a distinctly inimical influence on all bacteria which only flourish in a neutral or alkaline nutrient medium. The cause of this acid reaction throughout the whole length of the small intestine, he supposes, is due largely to acetic and lactic acids. The lactic acid found in the digestive tract is neutralised by the alkali supplied by the mucosa. Consequently the acidity diminishes towards the lower end of the ileum, though the normal reaction of the food was still slightly acid even when it was passing into the cæcum.

In Dr MacFadyen's case, where the fistula was at the extreme end of the ileum, it is instructive to note that a *vegetable* diet gave the patient most comfort, whereas in my jejunal case, as I have stated, an animal diet was best. He relates how in his case, where the nitrogenous element most prevailed in the diet, the intestinal contents were of a thin consistence, and contained on an average 5 per cent. of solids and 95 per cent. water. Even at times there were diarrhœic stools. But when his patient received a vegetable diet the discharge became more consistent and contained about 10 per cent. of solids. The evacuation took place without the patient being conscious of the act. Nor is there any record of skin irritation. This contrasts strongly with the suffering in my own patient. On physiological grounds we may infer that the higher up the gut the fistula is the greater will be the suffering from the discharge. The ferments and acids of digestion are pretty well exhausted by the time the cæcum is reached, but

when they escape upon the skin near their source the skin itself may be as powerfully digested as the food. *A propos* of the surgical aspect of this subject it has recently been pointed out by Neumann (*British Medical Journal*, June 1902) that after the operation of gastro-enterostomy the intensely acid secretion of the stomach, that pertains in certain conditions, passing into the jejunum through a new opening may produce ulceration and even destruction of the intestinal wall in much the same way as it acts upon the skin.

In my case various chemical and mechanical means were employed to protect the skin. The only one that gave relief was tannic acid frequently applied in weak solution to the immediate neighbourhood of the wound, and as an ointment over the surface of the abdomen. This substance diminished the vascularity of the skin and at the same time proved inimical to the ferments of the digestive juices and to bacterial processes on the skin. The pancreatic ferments were so active that there can be little doubt as to their issuing from near the fountain head of the pancreas. But there are cases on record where pancreatic fluid has not caused much injury to the skin, cases in which the fluid has been thin and poor in its ferments and also when it has been diluted by blood, pus or serum. Dr Alban Doran in relating a case of pancreatic cyst treated by incision and drainage (*British Medical Journal*, December 1897) says, Although my patient had a very tender skin and was worried with urticaria, the flow of pancreatic juice, fairly free at one time, never set up irritation of the surrounding skin, though it ran from June till about the first of October. In some cases the discharge remains bland for several weeks, and then becomes irritant, probably because it is at first diluted with serum or blood, and later becomes charged with an extra strong proportion of digestive principles. In some cases though the discharge may be pancreatic fluid, and also amylolytic, it may be too weakly charged with those principles to damage the skin. In my own case the suffering from the extensive area of skin digestion inflammation was very constant. So great was it that many a time she regretted that the medical profession had given its *fiat* against euthanasia to end such a life as hers or words to that effect. But for the use of morphia internally and tannic acid externally her life would have been unendurable.

The case suggests points both of surgical and medical interest. Should, for instance, the attempt have been made to close by operation the wound after the viability of the gut had become re-established, or, at all events, so to reduce it as to prevent the regurgitation of food, as in Dr Golding-Bird's case? The latter alternative would have allowed the adjustment of a tightly fitting tube, directed downwards into the bowel, through which the patient could have been partially fed while the necessity lasted. The smaller the fistulous opening, the greater manifestly would have been the advantage from all points of view.

In conclusion I regret that I did not do more, while the opportunity lasted, to make the record of this case of more value. If, however, the very few notes which I was fortunate enough to have taken before her death can be turned to practical account for the benefit of others, I venture to hope that this poor lady may not have suffered for these eight years in vain.

NOTE ON RAPID AND COMPLETE MECHANICAL DILATATION OF THE CERVIX UTERI[1]

By Professor A. R. SIMPSON

PROFESSOR BOSSI of Genoa, in 1889, proposed the use of an instrument for mechanical dilatation of the cervix. The Dilator as now used by Bossi consists essentially of four points or branches, 1¾ inches each in length, fitting into each other, so that when the instrument is closed they can be introduced through an undilated cervix. By means of a screw attached to the ingeniously jointed stems of the points these can be separated with whatever varying degree of rapidity may seem necessary, and to an extent regulated by a scale attached near the screw. For cases where the cervix is already to some extent dilated, so that a larger instrument can at once be passed, there are provided steel shields that are slipped over each of the four points so as at once to increase their bulk and their power of dilatation. When introduced through the cervix the dilator produces a double effect. *First*, it dilates the canal; and *secondly*, it stimulates uterine contractions. Where the dilatation is being carried on slowly, the instrument may be kept *in situ* by a strap attached to it and carried round the patient's abdomen and thighs, and a turn of the screw made every half-

[1] Communicated to the Edinburgh Obstetrical Society.

hour or seldomer. For more rapid dilatation the screw may be turned every quarter of an hour or oftener. In urgent cases full dilatation of the canal may be obtained by keeping up continuous action of the dilator in fifteen to twenty minutes. When pains are present, the active dilatation is carried out only in the intervals.

The *Indications* for the use of the Dilator are found in cases—

1. *Of Induction of Premature Labour.*—The instrument has been used successfully in cases where other means of starting uterine action have failed, or have produced only a partial effect, or where from the first it was desirable not only to secure uterine contraction, but speedy dilatation of the os uteri.

2. *Of Forced Labour.*—It has proved serviceable in grave cases of eclampsia; in cardiopathic and tuberculous gravidæ; in cases of hæmorrhage, accidental and unavoidable; and in rigidities of the cervix uteri.

3. *Of Tetanic Incarceration of the Placenta.*

A full description of the dilator, its indications and modes of employment is given by Professor Bossi in an article[1] of which he has kindly sent me a reprint and which contains a large series of cases illustrative of the value of his procedure.

I have not had an opportunity of using the Bossi Dilator in a case of labour, but I find that it works well in gynæcological cases. Leopold of Dresden has published a series of cases illustrative of its value in labours complicated with eclampsia in the *Archiv für Gynaekologie*, Bd. lxvi., and again in the *Centralblatt für Gynaekologie* for May 1902. In the *British Gynæcological Journal* for May, Dr Macnaughton-Jones has also commended its employment.

Special Article

THE GARIOCH AND NORTHERN MEDICAL ASSOCIATION

ON the highway to the north through Aberdeenshire, as one enters the ancient burgh of Inverurie, stands a well-known hostelry, "The Kintore Arms." There, in the year 1854, a few country medical men had forgathered. They were old friends, some had been fellow-students, but then widely scattered in practice over the county. The railway, just opened, offered greater facilities for meeting, and they resolved

[1] "Sulla Dilatazione meccanica immediata del Collo dell' Utero nel Campo Ostetrico," in the *Annali di Ostetricia e Ginecolgia*, 1900.

to form themselves into a Society, that they might regularly gather together around the festive board, with as many more medicals as desired to join, and so foster a friendly spirit in the profession. Thus the Garioch and Northern Medical Association had its origin.

For forty and eight years have these blythe meetings been held, in the same room, on the first Saturday in May and the last in September. The founders have all passed away, but the spirit they infused into the Society survives, their successors are loyal to the Garioch (pronounced Gaerie), and now are looking forward to the celebration of its jubilee, in two years, with keen anticipation of "a day of it."

Medical men alone are eligible for membership or as guests, but are not limited as to district. In the early years reading of papers and discussions were tried, but daylight and country environment are not conducive to such work, and for long it has been given up. The true function of the Association is simply to enable the members to forgather frequently, in canty mood, that they might know each other better, meet old friends, make new ones, *and dine together*. Blythe and merry are such gatherings, camaraderie and country abandon the ruling passion. The dinners are always in the afternoon, and as there are no late trains the members are home again in good time.

It was surely under the influence of some *genius loci* that the founders fixed on Inverurie as the place of meeting, and named the Society after the district renowned in the history of the country. A charm and wealth of association surrounds the name of "the Garioch." The flint workshop, the stone circles, more numerous than in any other part of the country, the sculptured stones, and the vitrified forts, attest the importance of the district in a pre-historic age. The battlefields of Barrowhill and of Harlaw bring us to historic times. Once the Garioch could boast of an Earldom; it still gives a title to an Earl's son. The ancient regality of the Garioch embraced the land where "the Gadie rins, at the back of Benachie," and where the Ury flows until it joins the Don, at the point where stands the Bass, referred to in one of Thomas of Ercildoune's rhymes. The Inverurie poet (William Thom) embodies the spirit of the place:—

> Gadie, wi' its waters fleet,
> Ury, wi' its murmur sweet,
> They hae trysted aye to meet
> Among the woods o' Logie.

With such surroundings and under like influences, town and country hae trysted aye to meet in the hostelry of In'rurie. So

the inhabitants pronounce the name, and the motto of the burgh is *Urbs in rure*, a motto the Association might appropriately adopt. The town members run out by train to meet their country brethren, silk hats and surtouts discarded, professors, east and west end practitioners, all on equal footing. The country men gather in from far and near, in hearty mood, free from the restraint that is apt to affect them when they come to town. They are seen at their best *in rure*.

Formality is reduced to the smallest possible limits. The presidentship for the year goes regularly down the list according to, seniority. The secretary, who makes all the necessary arrangements, is the only permanent official; there have been but two secretaries during all the forty-eight years. As the members arrive they forgather with one another in free and friendly intercourse. The formal business is soon transacted. There is no presidential address, no reading of papers or exhibition of specimens; such are poor appetisers, they weary and depress the spirits. There is no golf course at Inverurie, so the Society has as yet escaped that distracting and monopolising element.

Then comes the dinner, as elegantly appointed and well served as one need desire, yet without loss of the simplicity, abundance, and variety of an old-fashioned country repast. Hotch-potch or cockie-leekie; salmon fresh from the Don, and a dram to follow; the roasts, carved on the table; capon or howtowdies; puddings and tarts with country cream galore; kebbuck and oatcake. After dessert there is passed round from hand to hand the Society's snuff mull, an elegantly mounted horn, on the tip of which is engraved, "Gin you're nae a freend at a pinch, you're no worth a snuff." (*Chorus of sneezing.*) There is no snuffer now in the Society, but much may be said for retaining, on such occasions, the kindly expression of goodwill embodied in the old custom of handing from one to the other the snuff-box. 'Tis better than the loving cup, as expressive and more aseptic. It clears the brain and starts the merriment.

No incubus of a formal toast list is allowed, it checks the spontaneous flow of ideas. After the Royal health has been drunk, cigars and pipes are lit, and members let themselves go in speech and song and story. The struggle of life is for the time forgotten, grudge and rivalry have vanished, the mind flits back to the days gone by, student memories are recalled, and the traditions of former Garioch gatherings are recounted. Each year has its own vintage of stories. Certain songs are sure to be called for, notable in themselves, but also because they have become wedded with the strong personalities of the singers—"The Laird o' Tullyben, O," "The Tinker's

Wedding," "The Annuity," "Roger Rough," "Jack's Yarn"—ever fresh, no gathering is complete without one or all of them. Others there were, "The Brave Old Oak" and "The Ivy Green"; their sweetness lingers in fond memory, but the sound of that voice is still.

The festive spirit never flags, nor is it ever protracted; train time secures this. As "day and darkness elbow ither, bonnie in the gloamin'," the knights of the Garioch hie them home, refreshed and hearty, filled with kindly feeling. On the way to the railway station, one from the south once remarked, "There is something very pleasurable in these meetings." "Aye," said another from the north, "*they are by-ordinar.*" That is the exact word for them. The how and the why is sufficiently indicated by the description given, for those who have true appreciation. If for an afternoon, medical men would by times *forgather* in the country, in the free and equal, unceremonious and friendly manner of the Garioch Medical Association, there would be more unity amongst them. He is a poor fellow who shuns the company of his brethren.

Meetings of Societies

Edinburgh Obstetrical Society

THE Annual Summer Meeting of this Society was held on the 9th July, and partook of the nature of a conjoint discussion with the members of the Glasgow Obstetrical and Gynecological Society on "Hæmorrhages during the later months of Pregnancy and Early Stages of Labour." The discussion was inaugurated by Dr Jardine of Glasgow (whose paper appears on page 222).

The President having intimated that the renowned obstetrician, Dr Robert Barnes, was present, invited him to address the meeting. This he did in a few words, and received a cordial greeting from the members present.

Professor A. R. Simpson said that he considered Dr Jardine's paper an eminently lucid and satisfactory exposition of many points concerning accidental and unavoidable hæmorrhage. He thought the carelessness of women in reference to losses of blood was an important point. These patients were likely to have been the subjects of endometritis, and so they might have considerable loss of blood without paying much attention to it. The worst cases were those in which there had been two or three repeated hæmorrhages, not very large perhaps, at which neither the woman nor her medical attendant were alarmed, but in which when labour set in, a comparatively small amount of

hæmorrhage proved fatal. Active and energetic treatment should be carried out on the second appearance of hæmorrhage. Packing of the vagina was good treatment, or introduction of a large-sized Barnes' bag into the vagina to prepare the way for further dilatation, if need be, of the cervix, and later for turning and bringing down a leg. He was in doubt as to the value of vaginal plugging in cases of accidental hæmorrhage. There might be some cases in which this would be serviceable, possibly by its stimulation of the uterus, and not simply by preventing further loss of blood. In some cases where the hæmorrhage took place into the uterus itself, vaginal plugging was a very doubtful treatment, and in such, he thought that dilatation of the cervix would be better.

Dr Munro Ker said that he had treated ten cases of placenta prævia with no maternal mortality, but with a morbidity of two (=20 per cent.). The first was a very bad septic case, which he had not seen for some hours after the bleeding had commenced, and which had been freely handled by another practitioner and by a nurse previously. The second case became septic, and he had packed the vagina in this case on two occasions. In the ten cases four children had survived (=mortality of 60 per cent.); two were born macerated; three were dead before or immediately after the commencement of treatment; one died during the operation. The treatment of rupturing the membranes, separating the placenta from the lower part of the uterus, turning, and then allowing the labour to go on, was quite safe and satisfactory. In seven cases he performed version, and in three he delivered with forceps. In two cases before turning he had plugged. He considered that plugging in placenta prævia was not always effective. He did not think that it was desirable to risk palliative treatment; and in one case in which it was carried out in the hope of having a viable child, the mother died. As to the treatment generally, it was most important to make the diagnosis of the variety with which one had to deal, because the treatment varied considerably according to the variety. As to central placenta prævia, it was most desirable if the os were sufficiently dilated to turn, or to plug and turn as soon as bipolar version could be done. If lateral or marginal, it was quite sufficient to separate the placenta from the small portion of the lower part of the uterus and plug. Then when the dilatation was sufficient, to perform version or to deliver with forceps when the os was fully dilated. As to accidental hæmorrhage, he had had seven severe cases—two of concealed hæmorrhage. In all cases the mother had survived, but all the children except one were dead-born. In five cases of apparent accidental hæmorrhage he had plugged,

and he strongly agreed with the teaching of the Rotunda School as to the benefit of plugging in these cases. After sufficient dilatation had been obtained, it was desirable to rupture the membranes before turning or allowing the head if it presented to come down. In his cases of concealed accidental hæmorrhage he had ruptured the membranes and allowed the labour to continue, and in both cases the result had been satisfactory. He was strongly opposed to accouchement forcé in all forms, unless it was absolutely necessary for the sake of the mother, because of the injuries to the cervix and the much greater risk of infection. He believed in more palliative and less active treatment in these cases.

Dr Berry Hart said that when the hæmorrhage was severe the cervix should be dilated, and then bipolar version should be carried out, and having brought one or both legs down, the case should be allowed to go on by itself. While the case was going on slowly the woman could, if necessary, be stimulated by submammary injection of saline fluid, by strychnine, etc. If there were post-partum hæmorrhage the placenta should be removed, and there should be careful tamponing of the lower uterine segment and vagina with iodoform gauze. All should be done with strict antiseptic precautions. In accidental hæmorrhage, rupture of the membranes, dilatation, and bringing down a foot, together with free stimulation and delivery, constituted the best treatment.

Professor Kynoch of Dundee said that the treatment of placenta prævia consisted in bipolar version. There might be a difference of opinion as to the best method of treatment before the os was well dilated. In his own experience he had adopted both methods (plugging the vagina and cervix or introducing bags or tents) with success. When the os admitted one finger he had never had any difficulty in performing bipolar version. In placenta prævia the great essential was strict attention to antiseptic precautions, as in these cases there was an unusual tendency to the occurrence of sepsis. As regards accidental hæmorrhage, interference would depend on the amount of bleeding. If profuse, the uterus must be emptied. In cases of premature children, puncture of the membranes was sufficient. In cases near full time, one required, after dilatation of the cervix, to puncture the membranes.

Dr Haig Ferguson said that if in placenta prævia the hæmorrhage took place before labour had commenced, one was justified in palliating for a longer time than otherwise in the interests of both mother and child. If, however, the bleeding was due to the commencement of labour, then palliative measures ought not to be employed for any length of time,

unless at least the patient was under immediate observation. He entirely agreed with Dr Hart in stating that the patient ought to be left alone after the practitioner had turned and brought down one or both feet of the child. In hastening the labour there was great risk of tearing the cervix, and because of the exhausted condition of the mother doing harm to her by more active treatment. He protested against Cæsarean section or Porro's operation in accidental hæmorrhage, but advocated plugging the vagina under certain conditions. When labour had commenced, pains strong, os dilated and bleeding severe, then the proper treatment was rupture of the membranes and delivery by forceps or version.

Dr Cuthbertson agreed in the main with what Dr Jardine had said. The danger of placenta prævia was much greater in working class practice than amongst the leisured class, for one could not get the working woman to lie up. The doctor was as a rule also not called in until pretty late, as these women were not much disturbed by loss of blood. In these cases when the hæmorrhage was at all severe it was safer to bring on premature delivery. He had found plugging to be the best treatment for placenta prævia, packing the plugs very tightly, and he also used quinine in 5 grain doses, believing that it stimulated the uterus, and ergotin should be injected he thought in all cases.

Dr F. W. N. Haultain said that he was at one with those who had insisted upon slow delivery. He did not think that the hæmorrhage occurring post-partum in these cases was due so much to torn cervix, as to the fact that the child had been delivered before the sinuses in the lower uterine segment had had their mouths stopped by coagulation. The vessels in this locality depended on this, as it was a part which remained more or less passive (non-contractile). Within eighteen months he had seen three deaths from lateral placenta prævia; that was where the placenta could not be felt before labour, but where it was high up in the lower uterine segment. In cases of concealed hæmorrhage where the uterine wall was distended and the uterus in a state of inertia, then it was a mistake to plug. He had not seen accidental hæmorrhage concealed, but in cases where this did happen, and where there was a rigid cervix, he agreed with Dr Jardine that the only treatment was abdominal section and removal of the uterus.

Dr Michael Dewar said that in his own practice of over 2000 cases he had met with three cases of placenta prævia. The chief point for the practitioner was to distinguish between unavoidable and accidental hæmorrhage so as to treat the case properly. One of the most important helps to diagnosis was to

observe when the chief rushes of blood took place, and perhaps also to observe the softness or bogginess of the cervix.

Dr Balfour Marshall said that with reference to plugging the lower uterine segment in post-partum hæmorrhage in these cases, he had seen two cases in Berlin where this treatment had been carried out, and the plugging was done most carefully, but both died as the hæmorrhage still continued.

Dr M'Vie of Chirnside described an interesting case of placenta prævia which had occurred in his practice.

The President (Dr James Ritchie), in summing up the discussion, said that one point had been specially insisted on, viz., strict antisepsis. Then they ought not to wait too long in any case of ante-partum hæmorrhage, and he adverted to the need of waiting after having turned and brought down a foot. He questioned if general practitioners were very careful in determining what were cases of placenta prævia. Many cases of marginal placenta prævia were not recognised. The cases of accidental hæmorrhage which he had met with were not severe, and it had sufficed to rupture the membranes, and without much delay to turn and bring away the child.

Dr Jardine in reply said he should like to have dealt with the question of menorrhagia as an ætiological factor in producing placenta prævia. He had presupposed that every practitioner employed strict antiseptic precautions. He referred to the statistics of mortality. He thought that 23 per cent., as suggested by Dr Haig Ferguson, for private practice was too high. Roughly speaking he should say the mortality was one in twenty. He narrated some cases of concealed accidental hæmorrhage to show how hopeless the ordinary treatment of dilatation of the cervix, turning and delivery was in these cases, and said that in the next case of the kind which he met with he would remove the uterus.

The members afterwards dined together.

BRITISH MEDICAL ASSOCIATION AT MANCHESTER

The Section of Public Medicine

THERE were some big questions debated in the Section of Public Medicine. Re-vaccination, for example, Poverty, Housing, Phthisis, the Birth-rate, the Infantile Death-rate, the value of Hospital isolation in Scarlet Fever. These are all pressing questions. They are all social questions. Nothing shows like Public Medicine how the great diseases, or rather the mass of

diseases, or, to be yet more accurate, diseases in the mass, are mathematical "functions" of certain social conditions. It is gratifying to find that the medical profession is as alert as ever. Faddists, or no faddists—that municipal "spite-word"!—they are listened to. The Manchester deliverances will help to ripen the general mind on two or three things.

Take this of RE-VACCINATION. Dr Hope of Liverpool was right—the essence of good vaccination is thoroughness. Is there any good reason for believing that the present practice is not thorough enough? There is. The mass of certified "insusceptibles" is one very disturbing fact. Is there such a thing as an "insusceptible"? Perhaps—a small percentage. But it is suggestive that the public vaccinators—whose interest is not to please the parent but to protect the child—almost never find an insusceptible. The private practitioner, however, has some ground for complaint. He wants "guaranteed lymph." A large order this. The present Government laboratories were over-taxed last winter in the face of the moderate epidemic then current. The main complaint is "inertness" of the lymph. Have we been premature in our haste to glycerinate out those extraneous germs? The question is arguable; but there is no doubt about the potency of lymph glycerinated and kept according to scientific prescription—in the cool and in the dark. But there is another question. Primary vaccination is now, admittedly, not enough. What about compulsory re-vaccination? The Section was unanimous — compulsion must come. And here we plunge into politics. Infants, you will hear, are good and good enough. But boys? and adults? that is another affair. All the "anti-vacs" will glory in a new enemy. This time, however, there is hope that emotion will yield to judgment. Some men of ripe experience are ready to face the change to compulsion—with a "conscience" clause. And another thing, the Sanitary Authorities must take it all over from the Guardians (in England) and the Parish Councils (in Scotland). If vaccination is not a Public Health measure, what is? At least, the Local Authorities have the directest interest—a money interest—in preventing small-pox. Nett result of discussion: compulsory re-vaccination at school age; transfer to sanitary authorities; guaranteed calf lymph.

POVERTY. Mr Rowntree, who has hit the white with his book on York Poverty, was present to give his views and hear the comments of administrators. Mr Alderman M'Dougall led off. Infants suffer most. Train the mothers in food-making and food-giving. State-aided schools might give one good meal a day to the most needy—the older girls cooking the food. Intemperance, of course, to be reduced. A modified "old age

pension" scheme organised by the Guardians for the poor, not for paupers. Arrangements for loans to workers might be made. Weekly repayment. Dr Rhodes emphasised the evils of vagrancy and "sweated" labour. Educate, sanitate! No doubt, no doubt; but it is all so old. It reminds one of Carlyle in his "Past and Present"; the starving father and mother sacrifice starving Tom to get the insurance! "What a Committee of Ways and Means!" And it was in Manchester, too. It happens everywhere.

And the BIRTH-RATE? Is it not still high enough if only poverty is to face "30 per cent. of the people" (in London)? It is a complicated matter—the most complicated in all economics, perhaps. We somehow *will* not face the facts either way. If the birth-rate falls, as Mr Edwin Cannan proves, we tremble for the national superiority; if it rises, we fear over-population. Then short views prevail. Send to the colonies! make them the dumping-ground for the rejected. A fine proposal this. But here is poverty at home, yet the birth-rate steadily going *down*.

And this suggests INFANT MORTALITY. Manchester leads, unenviably. Dr Milsom Rhodes drove this home unmercifully. Of course, the whole group of questions are interconnected—over-population, poverty and infant deaths. Over-populated or not, we never will countenance these holocausts of infants. The mortality to-day, Mr Rhodes declared from figures, is as high as fifty years ago. "No less than 15 per cent. of the children born never see the first anniversary of their birthday." That paper is important and should be digested at leisure. And the main cause of this slaughter? Diarrhœa. Out of 22,916 deaths from this cause, 17,269 are of infants under one. France does more for her infants than we do. We shall begin to do more by and by; for as we fall in numbers, or remain stationary, we shall individually become more indispensable. Meanwhile, educate—this time in the use of the short tube sucking-bottle! The programme is good enough; but there are the dirty streets, and the dirty houses, and the dirty byres, and dirty cows, and dirty dairy-folk, and dirty milk-shops, all waiting to be cleaned as well as the sucking-bottle. And every one of those mighty dirtinesses is a vested interest. If only the infants were old enough to form a Trades Union and limit the output. Then possibly the fathers would begin to believe that their children are dying of stomach-poisoning; the mothers know it well enough already.

Now as to PHTHISIS. Compulsory notification or not, was one chief question. A few said "Aye"; the majority "No." The "Noes" have it. Dr Niven, M.O.H. of Manchester, whose

leadership in this section could not be bettered, gave some telling facts. He has had more experience of notified phthisis than any other one M.O.H. And he is for compulsion. So is Dr Newsholme. Of course the arguments against compulsion are strong; so were they when only the children's infections were in question. But the main objection is not really the notification; it is the unsuitability of the present laws for dealing with a peculiar disease like phthisis. Therefore, alter the law. Then notify. Or notify and compel the alteration in the law. To stand still is not possible. Dr Niven gave some excellent observations on the part the public-house plays. Spitting, of course. Bad ventilation of workshops was a great factor. The new Factory Act will help that in some degree. Suppression of spitting and the spread of wet-cleaning are the two great practical reforms, and the most urgent. These are weighty words. All they ask is "as easy as lying," yet some tens of thousands more must hurry off in needless haste to the grave before the remnant will believe it possible to have kept them here. "It was no use making legislation until they had enlisted the intellect and sympathies of the working people and the masters." (Applause.) There speaks the administrator. The reformer must take the hint. It is quite time to stop talking and to begin doing.

Then a word about the hospital isolation of SCARLET FEVER. This question has not been exhaustively treated. It will stand a good deal more analysis than it has yet got. Crude figures are worth the paper they are published on—not more.

Altogether, this section has held its own for interest and point.

Editorial Notes and News

The Position of Surgery in the Curriculum.

THOSE reformers who have for years been trumpeting outside the walls of the University Jericho will learn with great satisfaction that they have a powerful friend within. In the *British Medical* of June 26th, Professor Schäfer deals with the matter in words which might almost have been taken from an article written by Mr Berry some time ago. Every zealous teacher of surgery has been convinced for years that the task of teaching surgery to students who were ignorant of anatomy and physiology was a thankless one, and if, with the assistance of Professor Schäfer pushing from within, the ramparts are at last broken down, no one will be more thankful than the teachers of surgery in Edinburgh and Aberdeen.

In connection with this, it is to be regretted that the *British Medical Journal* should have spared some of its valuable space for the letter of "a London teacher," which is simply an attack at large upon the Scottish schools. It is another instance of the fact that it is better to discuss subjects such as these in the columns of our own journals. Linen of all sorts is best washed at home.

The Carnegie Trust. THERE are evidently shrewd business men among the Carnegie Trustees, for the manner in which they have dealt with the applications from the different University Courts shows sound judgment. £200,000, or four-fifths of the income of the free half of the funds for five years, have been set aside mainly for the purpose of building and equipment, but there are also varying sums which the Universities are directed to fund for the purpose of permanent endowment. Edinburgh receives £11,500 a year, Glasgow £11,000, Aberdeen £9000, and St Andrews £8500. In the relatively large grants given to the smaller Universities, one can trace the evidence of Mr Carnegie's desire to help those who help themselves. As Mr Carnegie, in his speech at St Andrews, put it, his greatest satisfaction in his gifts is when they stimulate others to do likewise. Aberdeen's sons have recently done nobly in buildings, etc., and £7000 per annum will make a very handsome nucleus for the permanent endowment of increased teaching facilities.

The extra-mural teachers will note with satisfaction that their claims are not to be "altogether" lost sight of. Much as we all desire the welfare of the Universities, no one wishes to see them flourish at the expense of the extra-mural schools, and it is only the narrow-minded University supporter who does not realise that there could be no greater calamity to the medical school of Edinburgh in particular than the weakening of the extra-mural schools.

The Manchester Meeting of the British Medical Association. THE Manchester meeting is over and done with, and it must be pronounced to have been an almost unqualified success. There were rumours of troubles, but no trace of them appeared to mar the amenities of the meeting. The general meetings were so peaceful that those used to the previous stormy scenes must have felt quite strange. The solicitor to the Association had definitely pronounced that under the new constitution all the notices of motion which had been given in were out of order. So satisfactory was the change that one member of council

suggested to us that it would be well if the Association could have a new constitution every year, so as to repeat this happy experience. The addresses suffered somewhat in being delivered in a very large hall, and they were inaudible to a large proportion of the would-be hearers, but those who did hear were most appreciative in their comments. After all the talk, there was no address on Obstetrics, but Professor Sinclair delivered an admirable address on Gynæcology, dealing with the subject of uterine carcinoma.

The sections were numerous, and were largely attended, special interest attaching to those on Public Health and the Diseases of Occupation. The sections of Medicine and Surgery were so overwhelmed with work and speakers as to very much disarm those conservative members of the Association who disapprove of the recent tendency to increase the number of sections, and indeed to raise the question whether some further means will not need to be devised to undertake anything like a considerable proportion of the material presented.

The section of Ethics, so much deprecated by many members, stands or falls by its chairman. In Dr Woodcock the section had as chairman an "old Parliamentary hand," accustomed to deal with all sorts of turbulent spirits and brimful of good-humoured tact. It is to be hoped that as capable a chairman will be found for the representative meetings of the future as the Ethical section had in Manchester.

The social part of the meeting was extremely well done, the hospitality was lavish, and one's only difficulty was that one could not possibly accept anything like the number of invitations received.

The Annual Exhibition was held in the Drill Hall, which, unfortunately, was some little distance from Owen's College. As a rule there is some special feature about each year's exhibition, and this year the feature undoubtedly was the large display of electrical apparatus. There were X-rays, high tension, radiant heat, and other apparatus galore, and if they can only cure one-tenth of the diseases which their inventors claim for them, the practice of medicine should be greatly simplified in the future.

All sorts of short excursions had been arranged to suit every variety of taste, and the excursion on the Ship Canal provided every variety of smell.

On Friday afternoon the annual golf match was played, and for the first time since its introduction Scotland had to lower its colours. Although we had the assistance of all the other Britains, the Englishmen won by 14 matches to 11.

Next year the Association will meet at Swansea, under the

presidency of Dr T. D. Griffiths, and if the meeting is not so large as the Manchester one, it will at least be more restful.

One cannot conclude without referring to the abounding hospitality of the President, Mr Walter Whitehead, whom we congratulate on the success of the meeting, which he is no doubt thankful to see so satisfactorily over.

MR J. W. DOWDEN has been nominated as Lecturer on Surgery to the Medical College for Women, Edinburgh, in succession to Mr Miles, who takes Mr Shaw M'Laren's place at the New School.

The Relations of the Medical Officer of Health and the Sanitary Inspector of Glasgow.

THE *Glasgow Herald* of August 4th contains an extensive extract from a series of regulations made by the Local Authority of the Burgh, under the Public Health (Scotland) Act, with reference to the duties of their Medical Officer of Health and their Sanitary Inspector. A perusal of these regulations, whilst at first one is apt to conclude that the respective duties are clearly and well defined, forces upon one at length the conviction that in most points of sanitary administration the two officials are made mutually responsible. For example, the Medical Officer is informed that, while his duty with regard to such a point is so and so, he shall at once inform the Sanitary Inspector, and confer with him and so on; that he shall meet him on stated days; that he shall let him inspect his books at stated hours and so on. And conversely, the Sanitary Inspector shall, in regard to such and such a point, confer with the Medical Officer, and shall meet him on certain days, and have his books open for inspection by the latter at stated hours, and so on. We still feel strongly that for effective Public Health Administration there should be one supreme and controlling power; and training, professional status, and analogy in other departments, point to the Medical Officer as the proper person to be at the head of affairs. We all desire harmonious working in such an important department of Municipal affairs, and we hope these regulations may conduce to this, but we still hold that the Medical Officer of Health of Glasgow is not placed in the position to which he is entitled.

Anderson's College Medical School, Glasgow.

The governors have appointed Mr Robert Fullarton, M.A., M.B., Ch.B., to the Chair of Physiology rendered vacant by the retiral of Professor W. Ernest Thomson.

Royal College of Physicians, Edinburgh; Royal College of Surgeons, Edinburgh; and Faculty of Physicians and Surgeons of Glasgow.

THE quarterly examinations of the above Board, held in Edinburgh, were concluded on the 26th inst., with the following results:—

First Examination, Five Years' Course.—Of twenty-nine candidates entered the following eight passed the examination:—Horace Moody, Crewe; Angus Cameron Mackay, Islay; Eleanor Margaret Thompson, Brighton; Thomas Mayne Reid Waddell, Japan; Thomas M'Laren Galloway, Fife; William Barclay, Perth; Thomas Wren Faulkner, New South Wales (with distinction); David James Melville Legge, Dundee; and four passed in Physics, six in Elementary Biology, and four passed in Chemistry.

Second Examination, Four Years' Course.—Of six candidates entered the following three passed the examination:—Charles Joseph Sutton, Cork; Edward Henry Smyth, County Cork; and John William Duncan, Newcastle.

Second Examination, Five Years' Course.—Of twenty-nine candidates entered the following seventeen passed the examination:—Alan Cunliffe Vidal, Eton; Ernest Patrick Titterton, Staffordshire; Tom Newman Darling, Reading; William Montgomery Johnston, County Derry; Joseph Millar Gordon Ewing, County Antrim (with distinction); John Samuel M'Lean, Melbourne; Colin Garner, Preston; Bertram Ingram, Victoria; Robert Percy Hosford, Cork; Henry Alexander Hagenauer, Victoria; James Sullivan, County Cork (with distinction); Charles Stewart Parnell M'Dermott, County Cork; Ayodeji Oyejola, West Africa; Michael Philip Desmond, County Cork; John Macmillan Campbell, Montrose (with distinction); James Young, Cork (with distinction); and Henry Edward Bolton, Dublin; and 2 passed in Anatomy.

Third Examination, Five Years' Course.—Of thirty-two candidates entered the following twenty-one passed the examination:—Jehangir Hormasji Contractor, Nassari; Arthur Joseph O'Leary, Liverpool; Thomas Bunnett Lewers, Victoria; Rupert Allan Clayton Rigby, Ceylon; Peshotan Ratanji Sataravala, Satara; Hubert James George, Jamaica; Edward Rainsford Mumford, Norwich; Lilian Mary Grandin, Jersey; Sybil Lonie Lewis, Chester; George Morley Arundel Thomas, Maesteg; Joseph Stark, Forth, Lanark (with distinction); William Herbert Boalth, India; Jamshed Dadabhai Munsiff, India; John St Aubyn Maughan, Grimsby; Broderick Edward Middleton Newland, India; Edward Percy Airth Richardson, Dunmurry; John O'Brien, Lismore; Elizabeth Mary Cardozo, India; William Lang

Hodge, Plymouth; John Joseph Lawton, Ireland; and Robert David Hirsch, Bombay; and one passed in Materia Medica.

Final Examination.—Of sixty-nine candidates entered the following thirty-seven passed the examination, and were admitted L.R.C.P.E., L.R.C.S.E., and L.F.P. & S.G.:—James Campbell MacLean, Beauly; Charles Isaacs Levey, Jamaica; Frederick Llewellyn Thomson, M.D., Ontario; John William Isbister, Stromness; Sophia Frances Hickman, Sydenham; David Moodie, Galashiels; Frederic John Scrimgeour, Newport, Fife; Robert Bathgate Johnston, Glasgow (with Honours); Philip Gray-Marshall, London; May Thomson, Edinburgh; Robert Douglas Argyll Douglas, Cape Town; Peter Mohan, County Louth; Henry Anderson Lunn, Jedburgh; William Bates, Partick; Donald Grant, Dingwall, Ross-shire; William Samuel Rainey Dick, Ballynafie; Arthur John Beardmore, Chesterfield; Vithal Narayan Patwardhan, Ahmednagar; Harold Ruby Parkinson, Manchester; Robert Patrick Hall Blackstock, Galashiels; William John Gray, Portobello; William James Noble Todd, L.D.S., Edinburgh; Shanker Bhawoo Kulkerri, Bombay; Mutyala Sriramulu Naidu, Ballary; Lewis Pemberton Anderson, Ulverston; Percy Howe, Denton; Joseph William Sutton, Cork; Pandit Devi Dayal Sasun, Punjab; Khubchand Menghraj Manghirmalani, Hyderabad; William Deery, County Tyrone; Henry Graham Argosti, M.D., Canada; Hirabai Fundoonji Banaji, Bombay; Alexander Watson Hart, Victoria; John Buckner, Aberdeen; William Gregory Neill Keith, Colombo; St Clair Grahame Ballenden, Sedgley; and John Walker Wood, Edinburgh; and five passed in Medicine and Therapeutics, one in Surgery and Surgical Anatomy, in Midwifery, and seven in Medical Jurisprudence.

Recent Literature

CRITICAL SUMMARIES AND ABSTRACTS

MEDICINE

DISEASES OF THE STOMACH: SOME DIAGNOSTIC AND THERAPEUTIC METHODS

By J. MACKIE WHYTE, M.D.,
Physician to the Dundee Royal Infirmary

UNDER the title of *Magensteifung*, Boas describes a form of tonic contraction of the stomach which is to be distinguished from the common form of peristaltic unrest (*Deutsche Med.*

Woch., 6th March 1902). "Stiffening" or "firming-up of the stomach" might be an English equivalent though inelegant; "stomach rigidity" would be misleading, as implying a more durable condition than actually exists. This tonic contraction of the fundus Boas finds to be proportionately common, and in some cases full of significance. If the fundus of the full stomach is persistently stroked with the palm of the hand, it may be felt from time to time to become stiff and firm; in a few seconds it falls away, with frequently a rattling or clucking sound (*glou-glou* of the French), or with a more or less lively eructation. There are three degrees of fundus contraction: (1) slight, limited to a small portion of the fundus, lasting a few seconds, not noticed by the patient; (2) distinct, felt as a strongly increased tonus, visible, ending with a noise, and felt by the patient as a somewhat painful contraction; (3) extremely marked, both to touch and sight, lasting longer, ending with a distinct gurgle, and felt to be more or less painful. In one instance the contractions were associated with simple pyloric stenosis, hyper-acidity, and hæmorrhages, and the symptoms and signs all disappeared after gastro-enterostomy. Other instances were due to pyloric spasm, or to cicatricial or malignant stenoses. In all, there was the effort of the stomach to overcome an obstruction, analogous to the better-known condition in the intestine. In certain cases a so-called primary atony of the stomach is proved by this sign, this temporary fundus-contraction, to be really due to a pyloric stenosis, the consequence of gastric ulcer. It is to be noted that the observation of the phenomenon is not infrequently rather difficult. A careful diet will prevent its development. Even in favourable circumstances, it may be necessary to examine three or four hours after an abundant dinner, while the stomach is full, and it is well to use some gentle friction with the hand cooled by water. The importance of a sign which will aid us in reaching a diagnosis of pyloric stenosis while still in an early stage is obviously very great from a surgical point of view.

Knapp (*Deutsche Med. Woch.*, May 1, 1902) describes a method of defining the contour of the stomach by inspection, without artificial aid. The fat of the abdominal wall does not interfere; the smaller curvature can, of course, be seen only in gastroptosis. The patient should be laid on his back on an ordinary examination-table, with the abdomen bared. While he breathes quietly the physician, placed either at his shoulders or at one side, according as he looks down or up, brings his eyes to the level of the abdomen and observes the respiratory waves. After a little practice the curvature of the stomach can be seen as a fine delicate line moving down with inspiration.

This is marked, and confirmed by gentle percussion; the stethoscope may be brought in to help, and the colon may be easily inflated as a still further aid.

Large doses of olive oil have been found useful in gall-stone colic, in certain cases of constipation associated with spasm, and in carcinoma of the œsophagus. Paul Cohnheim (*Therapie der Gegenwart*, February 1902) gives a very favourable account of the results obtained thereby in certain stomach diseases. A man had suffered a severe blow on the abdomen through a fall from a building. He showed symptoms of gastric ulcer followed soon after by dilatation of stomach. In the fasting condition in the morning, the stomach retained considerable remains of fermenting food with free hydrochloric acid and sarcinæ; there were severe colicky pains in the epigastrium at definite times and frequently vomiting. Lavage did harm rather than good, so the patient on the advice of a friend took one evening, after emptying his stomach by tickling his throat, a tumblerful of linseed oil. He felt so much the better that he went on taking this amount three times a day for some weeks with the result that he was completely cured. No doubt the mechanical effect of the oil in quietening the cramp and diminishing friction brought the rapid cure about. Induced by this observation, Cohnheim has used the oil treatment in a considerable number of cases. He prefers to give the oil through a stomach tube early in the day, the amount varying from three to six ounces; the patient is directed to lie on the right side for fifteen to twenty-five minutes and to fast for an hour. If pains recur through the day he directs that a smaller quantity (two ounces) be taken before bedtime. In one case this gave the patient a complete night's sleep—the first she had had for months. After a while the patient may take one or two tablespoonfuls half an hour before meals. The oil is best given at the body temperature.

The most suitable cases are those of dilatation of the stomach, due to pyloric spasm from an ulcer or fissure, but great improvement is also got in cicatricial stenoses of the pylorus or duodenum. With suitable diet and regulation of life, impending operations have thus been averted. Hysterical spasm of stomach is not alleviated so far as tried. There are no bad after effects if the oil is pure, and the nutritive gain is not to be overlooked, although the main object is to soothe spasm and lessen friction.

The treatment of gastric ulcer with large doses of bismuth is discussed by Fleiner (*Therapie d. Gegenwart*, November 1901). If a stomach with a recently formed ulcer can be kept well contracted, the deeper portions of the ulcer tend to adhere

together, granulations spring up, and the epithelium grows over. So the physician must guard against every tendency to dilatation through atony by the application of the ice-bag, or the thermophore, or fomentations, and he must likewise prevent distension by increasing the intervals between meals, and reducing their volume, giving enemata if need be. In relapsing cases one has generally to do with old ulcers, with a hard fibrous base. In these, even if the stomach is empty, there is little possibility of approximation of the sides of the ulcer, granulations grow slowly and scantily, and are not very resistant, the floor is irritated by ingesta and hydrochloric acid; consequently healing is very much slower than in a recent ulcer. Milk may be badly borne, and it may be better to substitute meat juice, soups, eggs, jellies and so forth. Irritation of nerves in such cases is very common, and is specially important in its consequences when the ulcer is in the neighbourhood of the pylorus. Fleiner strongly commends his practice of using bismuth subnitrate as a dressing in those irritable cases. After ten years' experience he formulates the following indications and methods. (1) In acute ulcers, recovering well on milk-diet, there is often trouble during the transition from a fluid to a semi-fluid or mixed diet. Hyperacidity and pain may be relieved by giving from 75 to 150 grains of bismuth, rubbed up with 3 ounces of water on the fasting stomach in the morning. This should be preceded by warm Karlsbad or Vichy water (3 to 5 ounces) taken three-quarters of an hour earlier. The first meal might be begun half an hour later. (2) In old ulcers with a hard base, where fragments of the nourishment cause constant irritation, the stomach should be well washed out in the morning by the tube; bismuth (150, 200, or even 250 grains) suspended in 6 to 8 ounces of water is passed in before the tube is removed, and the patient is made to lie down (on the right side if the ulcer is probably pyloric) for a time. As the bismuth acts purely mechanically there need be no hesitation about huge doses, provided that the lower bowel is emptied daily with the help of an enema. The treatment is contra-indicated in those rare cases where the stomach bulges in a diverticulum due either to the weakening of its wall by the ulcer or to perforation combined with adhesions to neighbouring organs. In such a case the bismuth is apt to form a concretion (combining with mucus). The author believes the presence of reduced black oxide of bismuth in the wash-out from a stomach where no sulphuretted hydrogen exists is an indication of this condition. The bismuth treatment should give place to gastro-enterostomy where there is distinct pyloric stenosis along with an ulcer near the pylorus.

SURGERY

THE SURGERY OF THE TENDONS

By J. W. DOWDEN, F.R.C.S.Ed.,
Assistant Surgeon, Royal Infirmary, Edinburgh

TENOPLASTIC operations are now being performed with increased frequency, and the results obtained so far by those who are enabled to speak from experience are decidedly promising.

Bradford, of Boston, in 1897 stated that of 27 cases operated on by him, 2 only showed no improvement; in 25 there was immediate gain. Tubby last year mentioned at the British Medical meeting that in 11 cases on which he had operated for paralytic talipes, the results were good in 6 cases and fair in 5; in no case was there failure. These results are corroborated by the work of others.

Goldthwaite says that though the operation is not perfect in its results, still a simple apparatus will be all that is needed to replace a complicated form; and when the region of the foot is the part involved the patient will walk better and limp less.

The cases which lend themselves to this mode of treatment are paralytic and congenital deformities, and those which arise from injuries to nerves or muscles.

Each case must be most carefully investigated before an operation is performed. Not only is the general health of the individual to be considered, but the general nutrition and growth of the limb must also be taken into account. It is most important to observe carefully the amount of deformity, the voluntary and relative strength of the muscles, as well as their electrical reaction. As regards the voluntary power of strong muscles, Goldthwaite has pointed out that in cases of talipes valgus, the peroneus longus and peroneus brevis may slip over the external malleolus, and assume a position in front of it so that their action then is to produce flexion and abduction instead of extension and abduction. Coolidge, of Chicago (*Annals of Surgery*, vol. xxxiii.), instances two cases where the secondary muscles regained tone after operation. Both were cases of talipes equinus, in which the tendo achillis had been divided and the tendon of the extensor proprius pollicis transplanted to the tendon of the tibialis anticus. Later it was found that the peroneal muscles had recovered power. Vulpius considers all cases suitable for operation by tendon transplantation, except when there is complete paralysis of the limb.

The age at which the operation should be done in paralytic cases is, according to Coolidge, two years after the attack, while

Sinclair White considers it better to defer operation until the age of four or later, because the tendons are small and difficult to manipulate, and the child has not obtained complete volitional control over its muscular tissue, which consequently prevents movements of an orderly character and unusual nature to be practised. The same surgeon recommends as a preliminary step before operation, a course of massage, passive movements and galvanism in patients with flabby, badly-nourished limbs.

Regarding the operation, strict asepsis is essential, and bleeding should be carefully arrested, as A. Hoffa has found by experiments that the presence of blood retards the union of tendons.

In operations about the ankle and wrist Coolidge recommends that the transplantation should be done, if possible, above the annular ligament. Robert Jones, of Liverpool, pointed out that all contractions of fascia should be first of all remedied, that a muscle of the same group, if possible, should be used, and that the reinforcing tendon should be carried direct and not bent at an angle.

Slips from a powerful tendon may be employed to strengthen tendons of paralysed muscles, or two weak but healthy tendons may be attached to the single tendon of a paralysed muscle, through the medium of which much work is expected. It is well here to bear in mind what Frederick Eve has drawn attention to, namely, that the tendons of paralysed muscles are always thin, consequently most operators employ the healthy tendons for transplantation rather than the thin atrophic ones. In conjunction with tendon transplantation, lengthening or tenotomy of tense tendons may be required.

In talipes calcaneus Tubby advises that the tendo achillis should be reinforced by a tendon from either side in order to preserve the central balance, and he has employed for this purpose the peroneus longus and the flexor longus hallucis with excellent results.

In talipes calcaneo-valgus Goldthwaite has attached the peroneus brevis to the flexor longus hallucis and the peroneus longus to the tendo achillis. Both peronei have been grafted to the tendo achillis. Tubby, however, advises fixing the peroneus longus to the tendo achillis and tenotomy or excision of a portion of the peroneus brevis, and should the extensor communis digitorum be tense, the attachment of its outer half to the tibialis anticus. Talipes equino-varus has been treated by tendon transplantation, but not with such good results as are obtained in the other forms. The tendon of the tibialis anticus has been grafted to the peroneus brevis, and that of the tibialis posticus to the extensor longus digitorum. The tendo

achillis has been split in two and the outer portion united to the peroneus longus or to the peroneus brevis as well.

The method of uniting the tendons which has apparently given fairly general satisfaction so far, is to pierce the weak tendon and pull through this opening the cut tendon of the strengthening muscle, then stitching it carefully in place; some use silk, others chromic catgut, and others kangaroo tendon. Drobnik, Lange, Kumik and others have advocated strongly, not the union of tendon to tendon, but the plantation of tendon into periosteum, and this has been discussed favourably at a meeting of the New York Academy of Medicine in December 1901, when Hibbs showed a case of paralysed tibialis anticus in which he had fixed half of the extensor proprius pollicis into the periosteum of the scaphoid and the other half into the communis digitorum. Wolff recommends osteal instead of periosteal implantation. Robert Jones employed, in one case at least, tendon transplantation together with fibrous ankylosis of the ankle-joint, which he obtained by peeling off the articular cartilages; the case was one where shortening of the tendo achillis for talipes calcaneus failed.

Tendon transplantation has also been employed in paralytic conditions of the thigh. Goldthwaite noticed that the sartorius often escaped and consequently carried out with excellent results, as others have done, the plantation of the sartorius into the tendon of the quadriceps extensor, and found in one case that four months after operation the thigh had increased half an inch in diameter. The crural biceps has also been used to assist the action of the quadriceps extensor, and Carl Bruns has employed this method in a case of deformity following disease of the knee-joint, with success.

Lengthening of the tendons as well as tendon transplantation has proved very useful in cases of spastic paralysis, and several cases are recorded of benefit due to such surgical interference in both the upper and lower limbs. The division of a tendon causes the spasm of that muscle to cease, and when applied to the distorting muscles helps to remedy the deformity, while extension applied in proper directions overcomes the contracted fascial bands, the ligaments and capsules of involved joints.

Tubby has lately reported four operations for spastic paralysis in the forearm, and of the results, three were good and one partially so. The method of operation which he employed for the typical deformity was to separate the pronator radii teres with its periosteum from its insertion into the radius, then it was carried through the interosseous membrane and attached to the outer side of the radius, thereby converting the muscle into a supinator; he also either divided the flexor carpi radialis,

or he passed it through the interosseous membrane and attached it to the dorsal aspect of the radius. The flexor tendons were divided until the fingers could be straightened. Townsend showed a case at the New York Academy of Medicine in 1900 where he had operated on a boy of fourteen with right hemiplegia and marked flexion of the hand and fingers with slight ability to extend them. The method employed was to divide the tendons of the flexor carpi radialis, the flexor carpi ulnaris and the palmaris longus at the wrist; these were passed through to the extensor aspect and sutured with catgut to the extensor communis digitorum: after some time the boy could flex and extend through an arc of twenty degrees.

Operations have been also performed for the contractures which occasionally follow injuries and fractures of the forearm, and the results have been satisfactory. Littlewood, writing on the ætiology of these contractures, holds that tearing of the muscles at the time of the injury is the cause, and that it is not due to the effect of splints or pressure sores. Von Gönczy had a good result in a case of extensor paralysis due to division of the radial nerve; he employed the flexor carpi ulnaris to strengthen the extensor communis digitorum, and the flexor carpi radialis to strengthen the extensor of the thumb.

OBSTETRICS

THE MODERN INDICATIONS FOR CÆSAREAN SECTION

By R. G. M'KERRON, M.A., M.D.,

Physician to the Maternity Hospital; Assistant to the Professor of Midwifery in the University, Aberdeen

AT the recent meeting of the British Medical Association an interesting discussion was opened by Dr Galabin on "The Modern Indications for Cæsarean Section." No more appropriate subject could have been selected to engage the attention of the obstetrical section at a time when, in the opinion of many, the limits of discretion in regard to the operation are being transgressed. The remarkable success which, in recent years, has attended Cæsarean section has led to a wide extension in the sphere of its application. By some operators, indeed, it seems to be regarded as a panacea for all the more serious complications of midwifery. It is surely a striking illustration of the advances in obstetric surgery that an operation, the mortality of which a few years ago made it prohibitive save in absolutely necessary cases, should now enter into competition with old and

well-tried methods of admitted value. Cases are reported in which the operation has been done not only for placenta prævia, but for eclampsia, for accidental hæmorrhage, for face presentations; in fact, the obstetrician stands bewildered at the variety of conditions for which the operation is suggested and performed. One cannot but think that a note of warning should be raised against this indiscriminate resort to a dangerous operation, and that the contra-indications even more than the indications stand in need of being revised. It is from this point of view more particularly that I propose to discuss the question.

In degrees of pelvic contraction which make delivery of a viable child obviously impossible, there can be no doubt that Cæsarean section at term is the treatment to be recommended. The case is different when the pelvis is of a size to permit of the possibility of a living and viable child. Here opinions differ. The alternative to Cæsarean section is the induction of premature labour, aided if necessary by the forceps. Pinard (*La Semaine Médic.*, 1901) absolutely condemns this method on account of the risks to the child and the possible necessity of having recourse to what he terms "that opprobrium of science," embryotomy. Paul Bar (*L'Obstétrique*, March 1902), on the other hand, maintains that the induction of premature labour when the conjugate is not under 3·4 in. gives as good results to the child, while it is safer for the mother, than Cæsarean section or symphysiotomy. The practitioner will naturally incline to the latter view, and prefer to give premature labour and the forceps the first chance, and be guided by the result—rather than by the exact degree of pelvic narrowing—in the management of future pregnancies. If unsuccessful on more than one occasion Cæsarean section should be advised.

It is when the latter operation comes into competition with craniotomy that the difficulty of deciding is greatest. As an elective method the former should always be chosen, but cases will arise in which, with the hope of avoiding either, premature labour or the forceps have been relied on and have failed, or it may be that the patient is seen only after she has been long in labour. In these circumstances is Cæsarean section or craniotomy to be selected? In making our choice we must not be guided merely by sentiment, which would urge the Cæsarean operation, but by what is safest for the mother. As Galabin insisted—and Bar is of the same opinion—we are not yet within view of "the complete abolition of embryotomy on the living child." The selection must depend on circumstances. If labour is premature, craniotomy should be preferred, as the abdominal operation will not hold out much prospect for the child while it will increase the danger to the mother. Where, however, labour

is at or near term, and where the futility of further attempts with the forceps is recognised before the woman is exhausted, the preference should be for Cæsarean section, provided an operator skilled in abdominal work can be secured, but the prospects will not be so good as in cases where it is performed before or soon after the onset of labour. Bar is rightly opposed to Cæsarean section where the woman has been long in labour, and where septic infection is already probable from efforts to extract with the forceps. Certainly in these circumstances it cannot be recommended to the general practitioner. With his lack of experience the mortality would be far in excess of that from craniotomy. In reviewing the statistics of the two operations, Galabin came to the conclusion that the maternal mortality in embryotomy was nearly double that of Cæsarean section in *favourable circumstances*. The comparison, however, is not a fair one, as embryotomy is never performed under favourable conditions. If it were, I agree with Dr Haultain that its mortality should be practically nil. Failure with the forceps and the necessity for craniotomy imply an error in diagnosis, but one which, with the present means at our disposal, often cannot be avoided. At the same time fewer failures would occur and there would be fewer cases requiring Cæsarean section if, as Bar advises, more attention were given to patients during pregnancy.

Among other obstetric complications for which Cæsarean section has been recommended, placenta prævia at the present time occupies the first place. It has been recommended and performed chiefly by American surgeons. The operation was first done for placenta prævia, in 1891, by Sligh of Montana, the main indication being a rigid os uteri. Both mother and child died. The first successful case seems to have been that of Dr Bermays, but his success ended with the recovery of the mother, the child dying within a few hours. On the whole the results are not encouraging. Of seven cases in which Cæsarean section was performed for placenta prævia four mothers died, while at least three of the children were lost.

If not the first, certainly the strongest advocate in this country of the treatment of placenta prævia by laparotomy was Lawson Tait. In the *Lancet* for 1899, he reported a case of unavoidable hæmorrhage successfully treated by removal of the uterus. He states as his reason for the operation that it would save the child and would probably save the mother, while by the accepted methods of treatment he believed the mortality to be 50 per cent. His method of arriving at the latter conclusion is peculiar, and it may be worth while examining it as his calculations have been quoted as an argument for Cæsarean

section. He takes Simpson's figures—collected over fifty years before—and magnifies his 29 per cent. mortality to 40 per cent. Not content with this he "gathers from the smothered confessions of other writers and the open admission of his friends that it is really much higher," and at once raises it to 50 per cent. It is doubtful if, in pre-antiseptic days, the mortality of placenta prævia ever exceeded 30 per cent., but to compare these results with those obtained at the present time is as unfair as to compare the early with the present mortality of Cæsarean section. Improved methods have so reduced the death-rate in placenta prævia that under favourable conditions it probably does not exceed 5 per cent. Hirst collected 104 cases, including 16 of his own, with only one death; and since then he has met with 24 more without having lost one. He would place the mortality at 1 per cent. The recent statistics of the Rotunda Hospital show a mortality of 4 per cent. in 74 cases. Even under the most favourable conditions Cæsarean section will not give so good results. During the past five years in the Boston Lying-in Hospital there were 32 Cæsarean operations for contracted pelvis, all in selected cases and performed with scrupulous care, and yet the mortality was over 9 per cent. In placenta prævia it is only exceptionally that the operation can be carried out under favourable circumstances. Higgins (*Obst. Soc.*, Boston, May 1901), who discusses at length the value of Cæsarean section in this complication, gives a short summary of the 8 cases which proved fatal in a series of 75 treated at the Boston Lying-in Hospital. Almost all were in such a "desperate condition" when admitted into hospital that "it does not seem as if the most enthusiastic advocate of Cæsarean section would care to do the operation." He draws attention to a fact, which is often overlooked, that six of the eight labours were *premature*, and that prematurity is generally a contra-indication to abdominal delivery. This proportion of premature labours is very nearly that which may be expected in the class of cases for which Cæsarean section has been specially urged.

In the discussion on Higgin's paper Dr Worcester advocated Cæsarean section, citing as an argument a case of placenta prævia in which, after the patient had been under observation for *a few weeks*, labour came on. Though he had plenty of assistance and every advantage he lost both mother and child. This, he said, set him thinking that there must be something wrong with the canonical methods of treatment. But the fault can hardly be ascribed to methods to which he did not conform. Of all the advances in treatment, that which has done most to diminish the mortality of placenta prævia is emptying the

uterus as soon as a diagnosis has been made. There must be no temporising. Success will depend mainly on early diagnosis. If the woman is seen before serious hæmorrhage has taken place, delivery can be safely effected by the natural passage, and Cæsarean section is unjustifiable. In private practice cases are generally seen sufficiently early, but it is otherwise with hospital patients, who often treat the earlier hæmorrhages with indifference, and do not seek advice till a large hæmorrhage occurs, or till repeated losses have impaired their health and strength. In these circumstances, version or the forceps, preceded or not by plugging, will give better results for the mother—and probably equally good for the child—than Cæsarean section.

Space will not meantime permit me to discuss the value of Cæsarean delivery in other complications for which it has been recommended.

DISEASES OF THE THROAT, NOSE AND EAR

By R. M'KENZIE JOHNSTON, M.D., F.R.C.S.Ed.,

Assistant Surgeon for Ear and Throat, Edinburgh Royal Infirmary ; Aurist, Deaf and Dumb Institution, etc.

Subcutaneous Injections of Vaselin into the Nose.—The injection of sterile vaselin of a high melting point into the subcutaneous tissues has recently been employed for several purposes, such as to remedy deformities, to give a cushion of support in cases of tendency to prolapse, and even in one case after the removal of diseased testicles, to give a natural appearance to the scrotum to satisfy the patient's ideas of the æsthetic.

Scanes Spicer exhibited to the Laryngological Society of London a patient in whom he had remedied by this method a marked deformity of the nose. The case was that of a woman who had a saddle-shaped nose from the falling-in of the bridge of that organ as a result of syphilitic disease. Following the method described by Gersuny of Vienna, Spicer attempted to get rid of the depression and to mould the nose into a better shape. A mixture of hard and soft paraffin, carefully sterilised, and melting at 105° F., was kept fluid in a water bath. The skin having been previously prepared, about ten syringefuls of the fluid vaselin were injected into the tissues over the nasal bones, by means of an ordinary serum syringe. At the same time an assistant was employed in moulding the vaselin before it set so as to give the nose the desired shape. No pain or inflammation followed this procedure, and the result was to give the patient a very presentable organ. As the improved shape

remained the same at the end of eight months, the result may be looked upon as permanent. In this particular case a little of the vaselin made its way into the upper eyelid, causing some œdema, but in any future case this might be carefully guarded against. (*Jour. of Laryngol.*, March 1902.)

Walker Downie reports two cases treated by him in a similar manner, and the excellent results which he obtained may be judged of from the photographs reproduced in the *Brit. Med. Journ.* of May 3, 1902. The procedure was the same as in the former case, but he states that the needle was kept hot by an electric current. How this was effected is not explained.

Brœckært also records a couple of cases treated with permanently good results, and looks upon this line of treatment as an important addition to modern surgery (*Rev. hebdom. de Laryng.*, etc., Dec. 7, 1902). He refers to pulmonary emboli having occurred in two cases that have been recorded, but thinks that this complication might be avoided by raising the melting point of the paraffin used.

It occurred to Dr R. Lake to try these injections in a case of atrophic rhinitis. In his case there was, as is frequently noticed, very great discomfort owing to the patency of the nostrils and the inability to blow them with any force. He therefore injected into the atrophied inferior turbinals 5 minims of sterilised paraffin at intervals of a week. In the course of a short while the patient observed a very great increase in her comfort from the turbinal cushions thus provided for her, while the spongy bodies became much more normal in appearance. (*Laryngoscope*, May 1902.)

Ichthargan: its use in Nose and Throat Diseases.—Ichthargan, a brown amorphous powder, is an odourless and stable compound of silver with ichthyol. It is easily soluble in water, glycerine, and dilute alcohol, and contains about three times as much silver as the strongest of the known silver compounds. In solution it should be protected from light as otherwise it readily deposits metallic silver. A series of experiments conducted by Prof. Aufrecht (*Deutch. Med. Woch.*, No. 13, 1900) show it to be a strong bactericide, and to possess the antiphlogistic, secretion-diminishing properties characteristic of ichthyol, and to be much more penetrating and less toxic than the other silver compounds.

Beaman Douglas, in a communication to the New York Academy of Medicine, gives the results of his investigation into its use in nose and throat work, and confidently recommends it to the notice of the profession. He finds that for general use it is best to employ from 2 to 4 per cent. dissolved

in water, glycerine, or a mixture of both. It is astringent, and when used dry or in strong solutions it is very irritating, but it has no caustic effect. When a 10 per cent. solution is applied to the nasal mucous membrane it causes a disagreeable taste, irritation with nasal discharge, lachrymation and sneezing, lasting for a considerable time. In the weaker solution it produces slight burning and smarting, but without actual pain. When applied to a congested area there is observed some anæmia, with contraction and shrinkage of the mucous membrane, and a slight amount of local anæsthesia. The drug seems to induce more healthy circulation in the part, thus diminishing congestion and lessening exudation, and to modify the secretion, so that a muco-purulent discharge soon becomes mucoid and normal in character.

According to Douglas, Ichthargan is a remedy of considerable value in diseases of the nose and throat. It acts well in acute rhinitis when used in a 2 per cent. solution, while in hypertrophic cases excellent results are obtained with double that strength. In operation cases where there is a tendency to exuberant granulations with discharge, a 4, 10, or 20 per cent. solution has a very beneficial effect.

In atrophic rhinitis he considers that its effects are unequalled by any other drug that he knows. Its astringent action tends to improve the local circulation, and its stimulant effect upon the functional parts of the mucous membrane, along with its antiseptic power, make it a remedy of great value in these troublesome cases. A large number of cases have been successfully treated by him in the following manner. The nose is first thoroughly cleansed of all crusts and discharge, and then a 4 per cent solution of ichthargan applied to the mucous membrane four times a week, the patient being instructed to use also an ointment containing 2 per cent. of the same drug made with vaselin. Under this treatment the patients improved rapidly, and generally at the end of a few weeks were free of their disagreeable symptoms, only requiring occasionally to use a little of the ointment. Many other conditions, such as acute catarrhal laryngitis, laryngitis sicca, specific and tuberculous ulcerations of the nose, were much benefited by the use of this drug, but it was in atrophic rhinitis that its chief value was demonstrated. (*Laryngoscope*, May 1902.)

Varieties of Nerve Deafness.—For a good many years the surgical aspect of suppurative ear complications has to a large extent monopolised aural literature. It is therefore a pleasant change to draw attention to a paper dealing more directly with the diseases associated with the ear as an organ of hearing.

Unfortunately, the latter do not promise to yield such brilliant results as the former, but none the less will they repay careful study.

By nerve deafness we mean more or less loss of hearing due to disease of some portion of the auditory nerve, its nuclei, the cortical centres or the strands connecting them. While admitting that such cases are often incurable, Dundas Grant, whose paper we refer to, is convinced that the effect of treatment is often marred by incorrect diagnosis. Various tests with the tuning-fork are employed to prove the presence of nerve deafness, and he considers that Gellé's test deserves more attention than is generally given to it. It consists in applying to the vertex a vibrating tuning-fork, while, by means of a Politzer's bag, the point of which is pressed into the meatus, the air pressure can be increased. When the bag is compressed the sound decreases very markedly if the stapes is mobile, but if the sound is not lessened then we may assume that there is ankylosis of this ossicle. Having satisfied ourselves as to the presence of nerve deafness, it is next of importance to decide, if possible, the site and the nature of the lesion on which it depends. As a general rule if the hearing be impaired for the higher tones the lesion will be found in the labyrinth, while if this be not the case the lesion is probably in some other part of the auditory tract. A methodical examination of the cranial nerves may help to localise the position. The onset and course of the deafness are to be carefully noted, for when the onset is sudden it indicates a hæmorrhagic effusion into the labyrinth (rarely an embolism), or else some nerve shock. Acute and rapid onset is generally inflammatory, while, apart from obvious feverish disturbance, syphilis is the most likely cause. In Meniere's disease the onset is sudden, but associated with marked giddiness and vomiting; while in sudden functional deafness from nervous shock, vertigo is seldom a prominent feature. Among the forms of nerve deafness which develop gradually we may distinguish an anæmic and a congestive variety, as well as other types, such as those due to senile changes, to occupation, to neurasthenia, to the abuse of certain drugs, etc. In the congestive form there is usually evidence of some general plethora, and the patient's symptoms are often worse when lying down, after taking food or stimulants, or after inhaling nitrite of amyl, and are relieved by compression of the vertebral arteries. In the anæmic variety these points are reversed.

In the treatment of nerve deafness it is evidently of great importance to diagnose correctly the exact lesion, and specially to distinguish between the anæmic and congestive types. The

writer thinks that pilocarpin has fallen into undeserved disuse, owing to its unfortunate effects in unsuitable cases. He looks upon it with confidence in plethoric, and as most harmful in anæmic cases. In nervous and anæmic patients tonic treatment is eminently called for and our sheet-anchor should be strychnine, and he looks upon quinine as the physiological corrective of the local anæmia. Electrical treatment does not seem to have given any very good results. Nerve deafness in the course of the secondary stage of syphilis is fairly amenable to treatment, but the tertiary stage gives little promise of improvement. (*Jour. of Laryngol.*, April 1902.)

PATHOLOGY

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The Agglutination of the Tubercle Bacillus and the use of this Agglutinating Property, by Robert Koch (*Deutsche Medicinische Wochenschrift*, November 28, 1901).—After the discovery of agglutinating properties in the serum of patients suffering from typhoid, cholera and plague towards the micro-organisms causing these diseases it was natural that the investigation should be made as to whether the serum of tubercular patients possessed this property towards the tubercle bacillus.

A difficulty here presented itself, as the tubercle bacillus naturally occurs in its cultures in more or less compact masses. The first to get over this difficulty was Arloing. He did it by cultivating the bacilli on potatoes, as media, for a long time. He thus obtained a culture in which the bacilli were fairly well separated from each other, and, in association with Courmont, he obtained positive results as regards agglutination with this culture and the blood serum or serous exudation from tubercular men and animals. Both investigators have recommended this as a means of diagnosing tubercular disease in the early stages. The author in his investigations on the relation of bovine to human tuberculosis employed the Arloing-Courmont method, but he very soon came to the conclusion that the method was not serviceable. He has, however, discovered a much simpler method which is as follows:—

Any culture of the tubercle bacillus may be made use of. The culture is collected, dried between blotting-paper, a definite quantity is weighed out and triturated in an agate mortar with

a weak solution of caustic soda; or, better, a dried culture is used, which is then reduced to as fine a powder as possible, 0·1 gram. of this is taken and carefully triturated with a few drops at first, but with a gradually increasing amount of Kochsalzlösung till the relation is 1 to 100. This is then centrifuged for six minutes, separated from the sediment and diluted again with Carbolkochsalzlösung till the relation is 1 to 1000. In this condition one can keep the fluid in ice for two weeks. The object of the carbolic solution is to prevent the development of other micro-organisms. For use a certain amount is taken and, again with Carbolkochsalzlösung, ten times diluted, so that the fluid ready for use is 10,000 times diluted. Such a fluid has simply a trace of opalescence in obliquely falling light and with a dark background.

If one adds to such a test-fluid a serum of strong agglutinating power (*e.g.* one which agglutinates in a dilution of 1 to 3000 after twenty-four hours), in a relation of 1 to 10 or 1 to 25, agglutination takes place in a few minutes, especially if the test-tube be held in the warm hands. The mixture is seen to become dimmer, a flocculent precipitate forms which aggregates more and more, ultimately sinking to the bottom and leaving a clear fluid behind. This experiment succeeds better if, instead of a dilution of 1 to 10,000, one of 1 to 1000 (the original solution) be used, and, as a control, a mixture of the same with the serum of a normal animal. In such a case the precipitation occurs at once in the one tube, while in the control the solution remains unchanged and clear. In a still stronger solution, however, the agglutination takes place more slowly. According to the author's observations the greater part of the reaction is over after fifteen to twenty hours, and he recommends that one should keep to this time if one is to obtain uniform results. The temperature at which the reaction occurs is also an important point. The author always makes his mixtures in the afternoon, places them in the incubator, and investigates them next morning.

The blood of the individual to be investigated should be taken with a cupping glass and as soon as possible centrifuged in order to have a clear serum. If one wishes to keep it, one must add one part of a fluid containing 5·5 per cent. of carbolic acid and 20 per cent. glycerine to nine parts of serum. To measure the serum, one uses a pipette in which the cubic centimeter is divided into a hundred parts. In carrying out the test, the author employs the following dilutions—1 : 10, 1 : 25, 1 : 75, 1 : 100, 1 : 150, 1 : 200, 1 : 300, etc. In other words, for a dilution of 1 : 10, he uses serum 0·1; test fluid 0·9; and so on. One should first pour the serum into the test tube, then pour in the

test fluid and then shake. A control must, of course, always be employed.

The agglutinating power of human serum varies very much and is tolerably low. One therefore uses dilutions of 1 : 10, 1 : 50, or, at most, 1 : 100. If we take as an example serum agglutinating in a dilution of 1 : 100, the appearance after the preparation has stood 15 to 20 hours will be as follows:—In the glass, with a dilution of 1 : 10, a flocculent mass is seen lying at the bottom; 1 : 25 has almost the same appearance, but the precipitate is not so thick. In a dilution of 1 : 50, the precipitate is not yet lying at the bottom, perhaps it is floating about in small masses. At 1 : 75 the floating of the small masses is more evident, and by 1 : 100 only a slight mistiness appears, and only in oblique light and with a dark background can one recognise small isolated masses. Further dilution in such a case would perhaps give a mistiness, but no macroscopic precipitate. A case which does not give a macroscopic precipitate is negative.

A serum loses its agglutinating power after a few weeks. The stem fluid (dilution of 1 : 1000) does not last longer than 14 days.

Results obtained by investigations on animals.—Arloing and Courmont consider that no reaction occurs in the normal rabbit; goats, on the other hand, giving a weak reaction; the calf is negative; cattle react at 1 : 5; the dog 1 : 5, sometimes 1 : 10 or 1 : 20; tubercular rabbits 1 : 10, seldom 1 : 20, in one case, however, 1 : 80; tubercular dogs 1 : 300, even 1 : 1000; goats 1 : 80; cattle 1 : 20.

Koch himself found in 30 rabbits, 28 with no reaction at a dilution of 1 : 25. Seven of these were negative at 1 : 10, two positive at 1 : 10. Two always agglutinated at 1 : 25.

Ten horses were investigated; all reacted at 1 : 25, two at 1 : 50.

From this it appears that the agglutinating property is very various in amount in the sera of different animals.

Attempts to increase the agglutinating power were most successful in goats. They were immunised with dead and also with living cultures of the tubercle bacillus, injected partly subcutaneous, partly intravenous. By this means, after several injections, the agglutinating power was raised to 1 : 50 and 1 : 100. Five were brought to 1 : 1000 and one to 1 : 1500. In the rabbit, the author found it more difficult, but he was able to reach degrees varying from 1 : 100 to 1 : 400. Cattle artificially infected with tubercle bacilli gave 1 : 10 to 1 : 50, one reaching 1 : 200. Horses, after a few injections, reached 1 : 200. Donkeys react in a similar manner to goats. After a short period of treatment they reach 1 : 200 to 1 : 400; one reached 1 : 3500.

This agglutinating faculty does not appear in the serum at once, not indeed until several days after injection. It reaches its greatest height 7 to 10 days after and then sinks slowly. One should therefore investigate the animals on the seventh to the tenth day.

Animals treated in this way have also immunising (antitoxic and bactericidic) properties as well as agglutinating in their blood. We can therefore assume that in the animals artificially brought to a more or less high degree of agglutinating power there is also a certain degree of immunity. The subject as to whether the agglutinating power is to be reckoned among the immunising properties, the author purposely leaves alone. He states, however, that one can in general say that agglutinating faculty and immunity have a certain relationship to each other, at least at the commencement of the immunising process, and that the former has some worth as a means of measuring the latter. The author examined his animals as to this, and considers that, as a matter of fact, according to the amount of the agglutinating faculty of their serum they possess a more or less high degree of immunity against the artificial infection with tubercle bacilli.

The author has also employed, as a therapeutic agent in cases of tuberculosis in man, a serum having an agglutinating power represented by 1 : 1000, but has as yet obtained no satisfactory results. It does not however follow, he adds, that nothing is to be hoped for in this direction; it only proves that the degree of passive immunity which is evoked by such a serum is small. Already a serum represented by 1 : 3500 has been obtained, and the probability is that much higher strengths may be reached.

An interesting question is how such a serum conducts itself towards the relatives of the tubercle bacillus and to the so-called acid-fast bacteria. It was found that such a serum possessed no agglutinating power whatever towards diphtheria, typhoid, coli of various kinds, also plague bacilli. On the other hand, it agglutinates bacilli of bovine tuberculosis, of avian tuberculosis, of fish tuberculosis, of blindworm tuberculosis, the Arloing-Courmont bacilli, butter bacilli, "grasbacilli," and other acid-fast bacteria, all apparently quite as readily as the bacilli of human tuberculosis. The author has also proved the converse in the case of the blindworm and "grasbacilli," *i.e.* he has immunised with these and has found that the resulting serum agglutinates bacilli of human tuberculosis.

Results obtained by investigations on the human subject.—Investigations were carried out on 30 non-tubercular persons. Of these 5 had a serum which agglutinated in a proportion of 1 : 25.

These were: a case of carcinoma, two convalescent typhoids, one erysipelas, and one furunculosis. The carcinoma case died shortly afterwards, and at the *post-mortem* no trace of tuberculosis could be discovered. In a case of muscular rheumatism, agglutination occurred in a proportion of 1 : 50. Six of these non-tubercular cases were tried at a strength of 1 : 10, and in two there was a weak reaction.

78 cases of phthisis were investigated. One case reacted at 1 : 50 (a case of phthisis of the third degree), 4 at 1 : 25 (2 of the third and 1 of the second degree). The others did not reach 1 : 25.

A case of bladder, one of bone, and one of skin tubercle, also a case of tubercular iritis, gave no agglutination.

Of the 78 phthisis cases, 38 were tested at 1 : 10, only 14 gave a positive reaction.

The author therefore comes to the conclusion that a marked distinction cannot be drawn between the serum of tubercular and non-tubercular cases with regard to their agglutinating properties. This corresponds with the results of C. Fraenkel, Neisser and others using the Arloing-Courmont method. The method is therefore quite useless as a means of early diagnosis. The "old tuberculin" remains, in the author's opinion, still by far the best method of diagnosis, a fact which was admitted at the recent tubercular congress. In reading a paper at this congress, France stated that he had tested 55 patients with tuberculin in an asylum, 45 reacted, and 29 of these who died were all demonstrated to have tuberculosis at the *post-mortem*.

Agglutination investigations show that patients suffering from phthisis of the third degree, after analogy with typhoid, do not show a stronger reaction than cases of the first and second degree. One can quite well understand this, as tubercle does not belong to the diseases which, like typhoid, form antitoxins which tend ultimately to bring the disease to a conclusion.

The question now arises, after one has raised the agglutinating power of animals in the way previously described, and so increased the amount of antitoxin, whether it is possible with this serum to assist the human organism in its fight against tuberculosis. The author considers that he is in a position to answer this question in the affirmative.

Hitherto the attempt to immunise against tubercle has been rendered difficult owing to the want of a means of measuring the immunising power of sera. We now possess this in the "Agglutination method" previously described.

We have discovered by means of animals the best way to treat the bacilli in order to employ them in such a form and

dose that high agglutinating power is quickly reached; and we have applied the experience thus gained with every possible care to man.

A fairly high agglutinating power is reached if the whole mass of a culture of tubercle bacilli be injected subcutaneously. But in order to be well absorbed the bacillus mass should be rubbed to the finest powder in the way formerly explained (*Deut. Med. Wochen.*, 1897, No. 14).

In the author's earlier immunisation investigations he divided the bacilli into two parts by centrifuging, viz., the precipitate (T.R.) and the overlying fluid (T.O.). The T.R., which was again triturated and again suspended, gave a relatively weaker, the T.O. a relatively stronger, reaction. The author at that time gave the T.R. the preference on account of this weaker reaction. Now, with the help of the agglutination method of testing, he has found that it is better to use the undivided culture mass, and that the agglutinating faculty is produced in the serum more surely and quickly if the reaction be not too slight. Besides this, he has assured himself that one can preserve the suspension of pulverised tubercle bacilli for a long time by the addition of 50 per cent. glycerine without its losing its active character. The author uses a suspension of one part of pulverised bacilli to 100 parts distilled water, to which fluid a like amount of glycerine is added. This mixture is left standing for several days. It is then poured off from the coarser, no longer suspended parts, and so preserved. A cubic centimeter of this preparation represents 5 m.g. of pulverised tubercle bacilli. The dilutions are made with 0·8 per cent. sodium chloride solution. The author employs this preparation as a rule, beginning with subcutaneous injections of ·0025 m.g. With this small dose a reaction seldom occurs. He raises the dose two to five fold each time, with pauses of one to two days between, till he obtains quite a marked reaction, with a rise of temperature of 1½ to 2 degrees. So soon as such a reaction has occurred one must make much longer pauses. The author waits as a rule six to eight days, or even longer.

Each patient, of course, is investigated before the beginning of the treatment as to the presence of agglutinating faculty in his serum, and again after the first two or three injections. Why this second investigation is made has already been explained.

If one finds by this means that the agglutinating faculty has appeared in the serum, or that that which is already present has been raised by means of the injections, then we must endeavour to keep up this condition, or, if possible, to raise it still higher. The author never goes back with a dose, and never repeats the same dose over again

In other cases the agglutinating faculty may decrease in amount, and the progress already won be lost again.

With the subcutaneous injections the author has reached doses of 20 m.g., and in a few cases 30 m.g. One cannot well go higher, as a larger quantity cannot be absorbed properly. The author recommends that if 20 m.g. be absorbed too slowly, one should divide the amount into two portions and inject into two different parts of the body.

Sometimes the agglutinating property sinks, in spite of steadily increasing doses. In such cases the author has always been successful, by intravenous injection, in raising the agglutinating faculty in a surprising manner. For this intravenous injection he has employed a fluid from which all suspended particles have been carefully removed by long-continued centrifuging. This fluid represents the author's earlier "T.O." One must take care that the dose for intravenous injection is distinctly lower than that for subcutaneous. In the author's investigations, which he has most carefully compared, he has found that a tenth part of the subcutaneous dose represents tolerably accurately the proper amount for the intravenous. Five and ten m.g. could, however, occasionally be given to patients when they were already high in the scale of immunisation. The intravenous method of injection has so many advantages that the author has lately used it to a much greater extent. He now usually begins the treatment with subcutaneous injections, and as soon as a reaction has occurred he continues with intravenous.

Among seventy-four patients treated after these principles an agglutinating faculty was produced of 1 :25 in 14 cases, 1 : 50 in 28, 1 :75 in 9, 1 : 100 in 10, 1 : 150 in 6, 1 : 200 in 1, 1 : 250 in 1, and 1 : 300 in 1. In the serum of the other nine no agglutinating property could be produced. Four of these never reacted; in all probability these were cases of old healed phthisis, as no tubercle bacilli could be demonstrated in the sputum. Five were treated for too short a time and with too small doses.

Since the cases treated by the author belonged to a large extent to the second and third stage of the disease, he states the opinion, on the ground of his results, that in every case of phthisis, with perhaps a few exceptions, a certain amount of agglutinating faculty and a correspondingly greater or less amount of antitoxin can be artificially produced.

He has come to the conclusion that the serum of patients in the first stage of phthisis is brought very easily to a high degree of agglutinating power, and that with them this faculty remains a comparatively long time; while on the other hand, with those in the second and especially the third stage, the

artificial immunisation is more difficult to produce, and the agglutinating property of their serum already won is more easily lost again.

The author believes that he can conclude that the appearance of the agglutinating faculty in his patients is intimately associated with the formation of an antitoxin, from the fact that the general condition of the patient obviously improved from the time that the agglutinating property showed itself in the serum. The appetite of the patients improves and the weight increases. The night sweats cease and the crepitations diminish, as also the amount of sputum. In many cases the sputum disappeared altogether, and also, of course, the tubercle bacilli. In patients who had no temperature at the time of injection there was no rise after. On the other hand, in patients who had a certain amount of temperature, the author observed that this was favourably influenced by the injection. At first a fall in the temperature occurred from the third to the fourth day, that is exactly when immunisation occurs. The temperature then remained low for several days, but gradually rose again; after the second reaction the temperature fell again. After further reactions such rises of temperature could be got rid of permanently. In a few cases the author succeeded in causing the disappearance of higher fever of a definite hectic type.

The feverish condition is therefore no contra-indication, as was the case with the old tuberculin.

The author has made exceptions only of such cases as were very weak; further, those that had such advanced disease of the lungs that improvement was not to be thought of; also of patients with weak heart's action. In all other cases he has attempted the treatment, and only given it up when, after several reactions, no agglutinating property showed itself in the serum, and the body weight continued to decrease. But it has been only in a few cases that he was forced to discontinue the treatment.

In conclusion, the author asserts that patients should be treated for six months or longer, especially when the stage of the disease is an advanced one. It is not necessary that a patient should remain in the hospital the whole time. As soon as larger doses are reached, and the reaction has become less, the injection, which need only be made every two to four weeks, can be given with the patient going about. But in every case these injections must be continued, although with increasingly longer pauses, till the bacilli disappear from the sputum.

The author does not consider that this method of treatment takes the place of all others, but suggests that it should be employed when no progress is being made under other methods.

New Books and New Editions

The Treatment of Fractures. By CHARLES LOCKE SCUDDER, M.D., Assistant in Clinical and Operative Surgery, Harvard University Medical School, assisted by FREDERICK J. COTTON, M.D. Second edition, revised. With 611 illustrations. London: W. B. Saunders & Co. 1901.

THIS book is altogether an admirable one. It is a manual of the treatment of fractures, and although the considerations pertaining to fractures in general have been omitted, the author often deals fully with methods of examination and diagnosis. In the chapter on Fractures of the Skull the complications of these injuries and their differential diagnosis is taken up and records of clinical cases introduced. In connection with Fractures of the Vertebræ, the anatomy of the spine, the cord and spinal nerves are described.

The most notable feature of the book is the profusion and excellence of the illustrations, which add greatly to the value of the text. Every important point that is capable of being represented is illustrated, very free use being made of tracings from X-ray plates.

The chapter upon the Rontgen Ray and its relation to fractures is a very valuable one. The mistakes that are commonly made in the interpretation of skiagraphs are pointed out, and the practical value of the X-rays as an aid in diagnosis well described.

The last two chapters are devoted to the use of plaster of Paris in the treatment of fractures, and to a judicious consideration of the ambulatory method of treatment.

A Manual of Modern Surgery: an Exposition of the Accepted Doctrines and Approved Operative Procedures of the Present Time, for the use of Students and Practitioners. By JOHN B. ROBERTS, A.M., M.D., Professor of Anatomy and Surgery in the Philadelphia Polyclinic. Second Edition. London: Rebman.

THE author of the above work is well known in this country. The book, which is eminently practical, has been brought well up to date. The essential features of every subject are treated in a direct and concise manner, and the student will find in the volume a large amount of useful information.

Diseases of the Anus and Rectum. By D. H. GOODSALL, F.R.C.S. (Eng.), Senior Surgeon (late House Surgeon) to St Mark's Hospital for Fistula and other Diseases of the Rectum, Senior Surgeon to the Metropolitan Hospital; and W. ERNEST MILES, F.R.C.S. (Eng.), Surgeon (out-patients) to the Gordon Hospital for Diseases of the Rectum, etc. In two parts. Part I. Pp. 340. Longmans, Green & Co. 1900. Price 7s. 6d. net.

THE first chapter of some 38 pages of this volume deals with the anatomy of the Anus and Rectum; in the second, under the heading of General Diagnosis, the Signs and Symptoms of, and Methods of Examination for, Rectal Disease are taken up; in the remaining chapters, Abscess, Fistulæ, Anal Fissure and Hæmorrhoids are considered.

The various morbid conditions are described in a systematic manner, their etiology discussed, records of clinical cases introduced, and a good account of treatment given. The book is fully illustrated by drawings and photographs which are well executed, and for the most part instructive.

The description of the various forms of fistula, and the rules given for operation in such cases are decidedly good. The authors advise operation in every case of fistula occurring in phthisical patients unless the pulmonary disease is so far advanced that the life of the patient "would be jeopardised by the operation." They know of no instance in which the activity of the pulmonary disease has been definitely increased by the curing of the fistula; and, in their experience, the wound heals soundly though less rapidly than in healthy patients.

The view of Ball that anal fissure is due in the vast majority of cases to the tearing down of one of the anal valves is only partially accepted, and the authors' contention is certainly supported by the statistics given as regards the absence of the so-called "Sentinal Piles," which Ball maintains is the torn-down anal valve.

In operating for internal hæmorrhoids the authors always make sure of the ligature, and urge other surgeons to adopt it as the best operation. The clamp, and cautery, and Whitehead method are merely mentioned, each of these valuable and established procedures being disposed of in a single sentence. The objection to the former is, in the opinion of the authors, that the whole of the pile cannot be removed without including more or less healthy mucous membrane; against the latter is urged the severe loss of blood, the length of time required for its execution, the tardiness in the subsequent healing, and the risk of ultimate contraction of the lower part of the bowel.

The Student's Manual of Venereal Disease. By F. R. STURGIS, M.D., some time Clinical Professor of Venereal Diseases in the Medical Department of the University of the City of New York. Seventh edition, revised, and in part rewritten by F. R. STURGIS, M.D., and FOLLEN CABOT, M.D., Instructor in Genito-Urinary and Venereal Diseases in the Cornell Medical College, etc. Pp. 216. London: Rebman, Ltd. 1901.

DR STURGIS' Manual was first published in 1880, and achieved a success which it justly deserved. The present edition has been revised and partly rewritten, Dr Sturgis taking charge of the chapters on Chancroid and Syphilis, Dr Cabot those on Gonorrhœa.

Small and reliable works on venereal disease are few in number. We can commend this manual, which is much less widely known in this country than in America, to the notice of students on account of the convenience of its size and the excellence of its clinical teaching.

Counties of Stirling and Dumbarton. Annual Report for the year 1901. By JOHN C. M'VAIL, M.D., D.P.H. (Camb.), F.R.S.E., Medical Officer of Health.

THE census of 1901 revealed a phenomenal growth of population mainly in the central and eastern districts of Stirlingshire. As an industrial district East Stirlingshire is rapidly assuming a foremost place in the country such as it has already attained in the county. This rapid progress adds greatly to the labours of the public health authorities. Fortunately they possess in Dr M'Vail an experienced and capable guide to aid them in deciding the various problems which successively become urgent. The meteorological reports form a feature of the yearly work in these counties, the rainfall and other phenomena being most carefully and continuously recorded at different places, with the assistance of numerous voluntary observers. Scarlet fever, measles and enteric fever were the chief infectious diseases which occurred during the year, and the epidemic of the latter at Barrhill Rows is specially well described. Proximity to Glasgow rendered the occurrence of small-pox more than probable, a few cases occurred, and the spread of the disease was checked by vaccination and isolation. A very useful piece of work has been accomplished by an agreement between the District Committees and the School Boards as to the share each will take in the necessary disinfection of schools. Among schemes which deal with required improvements are those for the proper drainage of Bannockburn and the enlargement of the

hospital there, and the formation of special scavenging and drainage districts in Lennoxtown and Balfron. Additional water supply has been introduced into Kippen, and will enable this pleasant resort to attain a popularity to which it is entitled by its situation and healthy surroundings. It is seldom that a medical officer is called upon to record a more disgraceful disregard of duty to the community than that committed by a householder in Bridge of Allan, who allowed two maid-servants known to be suffering from diphtheria to depart and travel by public conveyances to an unknown destination. Even an unsuccessful prosecution might have acted as a salutary warning to others in the burgh.

The statistical portions of the report are complete, but we notice that the rates appear to have been calculated on the census population and not on the mean population of the census year.

County of Clackmannan. Eleventh Annual Report of the Medical Officer of Health. Year 1901.

DR NASMYTH is fortunate in being able to report that the sanitary state of the county and its contained burghs showed in 1901 distinct improvement. The report deals fully with the important question of scavenging of villages. The recommendations as to the formation of cleansing areas, the removal of refuse, and the abolition of ashpits are excellent, and they include the very wise advice that the local authorities should themselves control the management of such areas when established. The requirements of the Factory and Workshops Act as to the registration of workshops are brought before the local authorities, and in future years reference will be made to the administration of the Act. That the Medical Officer was alive to the risks of importation of small-pox during the Glasgow epidemic is shown by the provision of means for its treatment; fortunately there was only one case. The statistical report, which refers to the county as distinct from the burghs, requires radical revision. Owing to an unfortunate slip in the calculation of population the various rates stated are inaccurate. It would be advisable in future reports to avoid the term "rate" of increase as here applied to the average annual actual increase. The report deals separately with each of the burghs. The introduction of a new sewerage system to Alloa is commended, and attention is called to the need of lodging-house accommodation in the same burgh.

Tabular statements of the vital statistics of the burghs and of the county are appended to the report.

Counties of Fife and Kinross. Annual Reports by T. G. NASMYTH, M.D., D.Sc., D.P.H., F.R.S.E., Medical Officer of Health. Year 1901.

A PERUSAL of these reports shows that the post of Medical Officer of Health is no sinecure, and that the supervision of the various departments included in public health administration has been constant and efficient. Dr Nasmyth does good service in calling attention to the procedure required under the Public Health Act for the formation of cleansing areas as contrasted with that available for the formation of water-supply and drainage districts. We agree with his suggestion that the former should be amended to correspond with the latter. Special attention is directed to the Factory and Workshops Act, and to the obligations it lays upon local authorities. During the year regulations for certain offensive trades and for dairies have been issued, and numerous analyses have been undertaken both of water and of food supplies.

The plan of the new isolation hospital for the Kirkcaldy district is included in the report. Both in building construction and equipment it appears well adapted to fulfil its purpose. The infectious diseases most prevalent were scarlet and enteric fevers, and erysipelas: not an unusual combination in years of deficient rainfall such as 1901. Provision of hospital accommodation is urged in both counties, Kinross requiring an isolation hospital and the districts of Kirkcaldy and Dunfermline a joint hospital for small-pox.

That parts, at all events, of the counties are not inimical to longevity is demonstrated by the mortality in the parish of Portmoak, where, out of 22 deaths in the year, 12 were those of inhabitants who had reached an average age of eighty-two years. A share in this result is attributed by the Medical Officer of Health to the absence of railways, telegraphs and telephones, and to the quiet life thus enjoyed in freedom from "life's little worries."

The Principles of Hygiene. By D. H. BERGEY, A.M., M D W. B. Saunders & Co.

THE author of this book makes no pretence to furnish us with an exhaustive work on hygiene, but simply aims at discussing those principles on which modern hygiene is based.

The book deals in a general way with nearly all the subjects relating to public health, and while these are not gone into in detail, still the information is always reliable and up to date.

There are the usual chapters on air, ventilation, water-

supply, disposal of refuse, etc., to be found in all works of this class, and in addition to these there are excellent chapters on Industrial, School, Naval and Military hygiene.

The most complete, and to the student in this country perhaps the most useful, part of the book is that dealing with "The Vital Causes of Disease," in which the subjects of Infection and Immunity are discussed at some length, and the results of the most recent researches on the subject of natural and acquired Immunity are given in a lucid and comprehensive manner. The whole subject is well treated, and in connection with personal prophylaxis, a most useful table is given, showing with reference to each infectious disease, the etiological factor concerned, the avenue of entrance, source of infection, mode of dissemination, and preventive measures.

The one fact which detracts from the usefulness of this work to students and practitioners in this country, is that matters are discussed purely from the American standpoint.

The various sanitary regulations quoted are American, and the metric system of weights and measures is employed throughout the book, which occasions some confusion in the minds of those accustomed to English works on this subject.

About seventy pages are devoted to the subject of quarantine, and the quarantine laws of the United States are given at length, as well as the various regulations for maritime, inland, and house quarantine in vogue in some of the leading states.

The procedure there, is of course, quite different from that adopted in this country. At the same time much valuable information is given as to the methods of inspecting ships—disinfection of cargoes, etc.

There are also found throughout the whole book many valuable hints in public health administration, not given in most works on Hygiene, and altogether this is a work which will repay perusal.

The book, which runs into nearly 500 pages, is well got up, well illustrated, and exceedingly well printed. "T."

Water and Water Supplies. By JOHN C. THRESH, D.Sc., M.D., D.P.H. Third edition. Rebman, Limited. 1901.

THE issue of a third edition of "Water and Water Supplies" has enabled Dr Thresh to increase the value, as well as the size, of his work by the addition of chapters on the protection of water supplies. Local authorities require to be impressed with the advisability of most carefully guarding from pollution the sources and storage receptacles of their water supply. For this purpose the author recommends that all wells should not only

be properly constructed, but should be surrounded by inner and outer protective areas of uncultivated land. The former should in extent equal at least the area of the cone of depression produced by pumping, should be enclosed, and should not be used even for grazing cattle. The latter should be of larger extent, and may be available for pasture. The protection of surface-water supplies requires control of the water-shed or collecting area, supplemented by ample storage and by sand filtration. Personal examination of the source of a water supply is rightly insisted upon in forming an opinion as to the suitability and safety of the water. The view that streptococci in water indicate recent sewage pollution, and necessitate condemnation of the water, is not accepted by the author, and he further states that B. coli communis or B. enteritidis sporogenes may be present in water of which the source is unimpeachable, though he has never met with these organisms together in a "safe" water, and agrees that they usually indicate sewage contamination. Apparently the author does not regard B. enteritidis as more serious evidence of pollution than B. coli. The purification of water is well and fully described, and sand filtration deservedly praised. The use of ozonised air as a purifier and sterilizer of water receives very brief mention; the Oudshoorn experiments are referred to, but there is no account of the later Lille investigation nor of the subsequent adoption of the method. Medical Officers of Health and others interested in water supplies will find in this book much valuable information gained by experience and clearly set forth in a practical manner.

The Earth, in relation to the Preservation and Destruction of Contagia, being the Milroy Lectures delivered at the Royal College of Physicians in 1899, together with other papers on Sanitation. By GEORGE VIVIAN POORE, M.D. (Lond.), F.R.C.P., Professor of the Principles and Practice of Medicine, University College, London, Physician to University College Hospital. Pp. 257, 13 illustrations. London: Longmans, Green & Co. 1902. Price 5s. net.

THE Milroy Lectures, devoted mainly to the consideration of the relations between soil and disease, occupy the first fourteen chapters of the book, and comprise references to most of the diseases which at one time or another have been attributed to telluric influences. Such views the author regards in many instances (*e.g.* diarrhœa) as not proven, a verdict lawfully recognised in this country, and eminently scientific. Dr Poore holds strongly that healthy humus efficiently disposes of fæcal matter

and protects underground water supplies from contamination provided there be no access to these through fissures or similar channels. He therefore regards a surface well, properly constructed and in a selected situation, as a safe source for water. Such a well he has had in use for thirteen years, the ground round the well having been all the time used for the disposal of human excreta. Chemical analysis recently made for the Royal Commission on Sewage Disposal shows that the water in the well is of fair quality and has not deteriorated in chemical purity. It does not, however, reach a high level of bacteriological purity, and the suggestion that this may be due to insects which invade the well certainly requires proof. Dr Poore demonstrates that the advantages of the application of dung to land outweigh the disadvantages and deprecates the loss of nitrogen to the soil, a loss inseparable from the discharge of sewage into the sea.

The other papers deal with enteric fever, sanitation in camps, milk in relation to health and disease, and some dietetic and housing problems. Perhaps the most interesting chapter in the book is one dealing with the building construction and sanitary arrangements of a cottage, hygienically complete, though not in accordance with the requirements of Model Bye-laws.

A Manual of Ophthalmoscopy. By J. E. JENNINGS, M.D. Pp. 180. London: Rebman, Ltd. 1902. Price 7s. 6d. net.

THIS manual is an elaboration of a series of lectures on ophthalmoscopy delivered before the graduating class of the Beaumont Hospital Medical College of St Louis. It is on the whole adequately illustrated, and gives in small compass and at a light cost all that the student and general practitioner requires to know regarding diseases of the fundus.

A Manual of Chemistry for the Use of Students of Medicine. By A. P. LUFF, M.D., Physician in St Mary's Hospital, and F. T. M. PAGE, B.Sc. Cassell & Co. 7s. 6d.

THE authors state that the book has been written to bring together in a concise form those portions of chemical science that directly or indirectly bear on the study and practice of medicine. In a small volume there is therefore comprehended a theoretical part, sections on inorganic and organic chemistry, analytical tables, and many pages of chemical problems.

Such a mass of material gives the book the nature of a dictionary, and it is hoped that the day has now passed when a medical student would be required to load his memory with

so many detached facts only for the purpose of passing an examination.

A beginner cannot study chemistry from a medical point of view. He must get the simple fundamental facts of the science so emphasised by experiment and repetition that they become a part of his common knowledge, and therefore cannot be forgotten, then he may add the more strictly professional information.

He ought to be taught by a chemist, and use a text-book written by a chemist.

This is shown by the work under review, which, although generally accurate in the descriptions of the preparation of compounds, is antiquated and indefinite in the theoretical part. We find statements like these:—"In gases the force of repulsion exercised by the particles is considerably greater than the force of attraction." "The atomic weight of an element represents the specific gravity of the element in the state of gas or vapour." The law of multiple proportions states: "When two elements unite together, in different proportions, to form different compounds, they do so in simple multiples of each other."

Again, a chemist would not have said that "Yellow soap is sodium oleate, soft soap is potassium oleate, and curd soap is sodium stearate," or that "Urea may be converted into ammonium cyanate by raising it to a *dull red heat*."

The new changes in the instruction of medical students in chemistry at the Scotch Universities will do away with the necessity of using a book like this in Scotland. "L."

The Essentials of Histology. By E. A. SCHÄFER, LL.D., F.R.S., Professor of Physiology in the University of Edinburgh, &c. Sixth edition. Pp. 416. London: Longmans, Green & Co. 1902. Price 9s. net.

PERHAPS the best proof of the utility and value of Schäfer's Essentials of Histology is the publication of yet another, the sixth, edition of the work. The subject is, as formerly, divided into forty-six lessons, although the present edition has been considerably enlarged and contains between fifty and sixty pages more than the fifth edition published four years ago. The present edition has been much improved by the inclusion of new illustrations, many of which are original drawings, and which will, one can assert with confidence, be of much greater service to the reader than were the illustrations for which they have been substituted. The main additions to the text are, as might be expected, found in the lessons dealing with the structure of the central nervous system. These parts of the

book have been considerably improved by the fact that the structure of the spinal cord and pons is described in fuller detail than formerly and by a clear account of the origin of the cranial nerves arising from the medulla oblongata and pons, diagrams showing the origin, course and communications of the nerve fibres. The question may indeed be asked whether so detailed a knowledge of the nervous system is, as the author remarks in the preface, really essential to students of medicine. It is well, however, that a description is given of Nissl's degeneration and that the author substitutes the term "axon" for "neuron" when referring to the axis-cylinder process, thus conforming to the nomenclature in general use. The assertion that the muscular coat of the ureter consists of two layers, an outer circular and an inner longitudinal, is possibly a printer's error. More remarkable, however, is the statement that the function of the islets of Langerhans in the pancreas is unknown. It had been better were the function of these islets not referred to at all, than that the results of recent research on their relationship to the metabolism of sugar should be thus ignored. Such points as these do not, however, detract from the general excellence of the book, which is worthy of much commendation and which will certainly not fail to become as popular as the former editions.

Mentioned in Despatches. London: *The Army and Navy Gazette.* Price 1s.

THERE is nothing new in this, but it is a handy form, giving in one volume the numerous "Mentioned in Despatches" during the South African campaign.

The compiler must be something of a prophet, for it is headed "South African War, 1899 to 1902." The Medical Department has not done badly; there are five V.C.'s, one K.C.B., twenty C.B.'s, two K.C.M.G.'s, forty-seven C.M.G.'s, and thirty-seven D.S.O.'s.

Illustrated Lectures on Nursing and Hygiene. By R. LAWTON ROBERTS, M.D., etc. Third edition. Pp. xxv. 223. London: H. K. Lewis. 1900. Price 2s. 6d.

THIS book, adapted to the Nursing Syllabus of the St John Ambulance Association, calls for little comment, as its merits have stood the test of time and use. Its instructions are clear, and if any suggestion for its improvement were to be made, it would be that the author should add specific directions for the open-air treatment of phthisis.

Nursing, General, Medical and Surgical, with an Appendix on Sick-room Cookery. By WILFRID J. HADLEY, M.D., etc., Lecturer to Nurses at the London Hospital Nursing School. Pp. x. 326. London: J. & A. Churchill. 1902. Price 3s. 6d.

THIS volume is likely to be useful to those who are privileged to hear Dr Hadley's lectures, but its usefulness for others is not so evident. It suffers here and there from lack of detail in the instructions. On massage, for example, there is no word that would prevent an inexperienced nurse rubbing a hole in the skin, except that the beginner had better use a lubricant. The details are doubtless supplied in practice at the hospital. It also includes many things that pertain to the practitioner's duties rather than those of the nurse: for instance, the instructions for testing urine for albumen and sugar.

A Short Manual for Monthly Nurses. By CHARLES J. CULLINGWORTH, M.D., F.R.C.P. Fifth edition. London: J. & A. Churchill. 1901. Price 1s. 6d. net.

IN his preface the author says "this manual is intended for the use of those who, having already been trained in the duties of *general* nursing, desire a few plain directions with regard to the special duties of *monthly* nurses." That being the case, why is it called "A Short Manual for Monthly Nurses," when, according to the author's statement, it is intended for an entirely different class of women.

As the book has reached a fifth edition there is evidently a considerable demand for it. It is undoubtedly well written and admirable so far as it goes, but no man can possibly deal adequately with the subject of midwifery in ninety-four very small pages of large print.

Illustrations are conspicuous by their entire absence.

Transactions of the College of Physicians of Philadelphia. Third series. Vol. xxiii. Pp. 320. Philadelphia. 1901.

THE volume contains the papers read before the College during the year 1901, and forms a record of work of interest and value to those whose attention is directed towards the subjects dealt with by the various writers. Dr Tyson, writing the "Memoir" of William Pepper, so well known in this country as the Editor of

Pepper's *System of Medicine* and of the *Text-Book of Medicine by American Teachers*, depicts a life crowded with events, and fruitful of important and wide-reaching results. The qualities which made Dr Pepper what he was, which secured his success in organisation, in financing, and in originating and completing great and useful undertakings, were, as Dr Tyson says, his undying hopefulness and unwearying energy which knew no bounds, scarcely knew fatigue, and were never discouraged by defeat. Dr George M'Clellan contributes a short paper on Dr Physick, "The Father of American Surgery."

Dr J. H. Gibbon reports a case of cholelithiasis, one of the chief points of interest being the abnormal situation of the gall-bladder in the right iliac fossa, owing to long peritoneal attachment to the liver. Dr F. A. Packard and Dr R. G. Le Conte conjointly deal with the surgical treatment of ascites, due to cirrhosis of the liver; report two cases thus treated, both of which ended fatally; and indicate that when the diagnosis of pure portal cirrhosis can be made, and when persistent medical treatment is of little or no avail, operation should be recommended. Dr J. F. Schamberg and Dr J. F. Wallis contribute a paper on wax models of cutaneous diseases, and give directions for their preparation. Dr A. Randall writes on otitic extra-dural abscess; Dr G. W. Crile on surgical shock and collapse; Dr O. Goldan on the use of nitrous oxide and oxygen as an anæsthetic; and Dr O. Horwitz on the treatment of hydrocele, referring to the operation of inversion of the tunica vaginalis as described by Doyen and Winkleman. Dr R. G. Le Conte records a case of echinococcus disease of the breast; Dr J. H. Jopson and Dr C. Y. White record a case of sarcoma of the large intestine; Dr W. G. Spiller records a remarkable case of complete absence of the visual system in an adult; Dr J. Sailer deals with the relation of tuberculosis to pseudo-leukæmia; and Dr J. M. Spellissy writes on heat-stroke. These are some of the more noteworthy papers. Included at the end of the volume is an elaborate work by Dr H. F. Harris on the alterations produced in the large intestine of dogs by the Amœba coli, by heat and various chemical substances. He states that Shiga's bacillus, introduced into the large intestine of puppies and cats, failed to produce any effect, and concludes that the Amœbæ are the true causal agents of chronic dysentery.

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THE SCOTTISH
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ON THE FALLACIES OF THE COPPER REDUCTION TEST FOR SUGAR IN THE URINE [1]

By FRANCIS D. BOYD, C.M.G., M.D., F.R.C.P.Ed.,
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MOST physicians who examine candidates for life assurance are familiar with the nervous individual who dreads medical examination and "bucks" himself up for the ordeal with a pint of champagne, thus producing a transitory or alimentary glycosuria. It is not with such conditions that this paper is intended to deal, but rather with the substances apart from glucose which though they may have no known pathological significance have the power on the application of Trommer's or Fehling's test, of dissolving copper hydroxide and of reducing copper hydroxide, forming the red suboxide. A number of urines of this class have come under my notice, and it appeared of interest to define the limit of power of some of the different substances capable of producing error, and to determine the limit of probability of fallacy in the test for sugar as carried out by the ordinary method with Fehling's solution. Two cubic centimetres of Fehling's solution was taken as an average quantity used in the routine application of the test. It was titrated with solutions of the different substances of known strength, the points when reduction appeared and when reduction was complete were noted. Complete reduction was checked by filtering the fluid and testing with acetic acid and ferrocyanide.

[1] From the Laboratory of the Royal College of Physicians, Edinburgh. Read before the Medico-Chirurgical Society, Edinburgh.

The substances which occur in the urine, and will produce copper reduction apart from glucose, are the glycuronic compounds, uric acid, kreatinine, pyrocatechin, and hydrochinon.

Glycuronic compounds are found in the urine in apparent health; after administration of various drugs of the aromatic series, such as camphor, naphthol, turpentinol, menthol, morphia, etc.; in infectious conditions such as typhoid fever, general sepsis, tonsillitis, etc. It is generally supposed that under such conditions the formation and excretion of glycuronic compounds is an effort on the part of the organism to protect itself from poisoning by the aromatic bodies, the poison uniting with glycuronic acid and being excreted as an aromatic glycuronic compound which is nearly or wholly innocuous. These glycuronic compounds are, of the different substances, the most likely to give rise to error in the application of the copper reduction test to urine. But given a urine which reduces copper, how are we to recognise that the reduction is not due to glucose but to a glycuronic compound? Ashdown (1) formerly described a method for separation and estimation of these bodies, but it is now abandoned for the benzo-chloride method. For recognition of the presence of comparatively small quantities, Neuberg (2) has introduced the phenyl-hydrazin-bromide test. From Mayer's (3) observations the phenyl-hydrazin test, as conducted for glucose, does not give satisfactory results with glycuronic acid. A urine which contains glycuronic compounds will reduce copper and bismuth in alkaline solutions but will not undergo fermentation if treated with yeast. On treating the urine with hydrochloric acid and orcin or phloroglucin, a beautiful colour reaction is produced, a brilliant red passing into reddish-blue, followed by the deposition of a blue-green precipitate, which on the addition of alcohol, dissolves, giving a greenish-blue colour. A urine containing glycuronic acid is levorotatory, and with the spectroscope gives absorption bands between C and D extending close to, and at times up to, D.

The importance of the recognition of the glycuronic compounds in the urine is well exemplified by the following case. The urine of a gentleman was submitted to me for an opinion. The subject was a healthy man in middle life. He was desirous of increasing his life assurance policy in order to become a director of one of the large Edinburgh companies, but when

examined he was rejected on the ground that his urine contained sugar. Several samples were sent to me, and all had much the same characters. The urine was clear and of a normal specific gravity. With the copper and bismuth tests there was decided reduction. The fermentation test proved negative, and no crystalline osazon was obtained with phenyl-hydrazin. The orcin and phenyl-hydrazin-bromide tests had not then been described, but I was able to satisfy the medical officer that the copper reducing substance was a non-fermentable carbohydrate — a glycuronic compound. The life was accepted, and the applicant is still, after eight years, in excellent health.

Most of us are familiar with the green colour which at times appears in the application of Fehling's test to the urine. Such a discoloration is produced by the presence of kreatinine, a body which is always mentioned in the text-books as a fallacy in the copper reduction test. Kreatinine in the urine may be demonstrated by the nitro-prusside test. It is derived from the kreatine of the food, and the amount present in the urine varies in health with the amount of kreatine ingested. Its power of reducing copper in alkaline solutions is not great. The copper in 2 c.c. Fehling's solution is reduced by 0.07 grm. kreatinine. Normally, urine contains about 1 grm. kreatinine in 1·500 c.c. 1·5 c.c. urine will therefore contain 0·0001 grm. Kreatinine can therefore be excluded under ordinary circumstances; if present in excess it may give a change of colour, but will produce no definite copper reduction.

Uric acid is present in the urine in a proportion far in excess of the amount soluble in an equal quantity of water. A solution of uric acid in pipyridin was used in making observations and the results checked with a simple solution of pipyridin. With 2 c.c. Fehling, 0·017 grm. uric acid gave a decided reduction, while 0·03 grm. gave complete reduction. If we take the uric acid excretion in the urine as 1 grm. in twenty-four hours, an amount above the normal, then 1·5 c.c. will contain 0·0001 grm. uric acid, a quantity too small to produce any appreciable reduction in 2 c.c. Fehling's solution. Uric acid may therefore be excluded as a fallacy of the copper reduction test unless present in excessive amount in a highly concentrated urine, and even then the fallacy is improbable.

Alkaptonuria is an interesting urinary condition which has frequently led to errors in the conclusion drawn from the copper reduction test. The urine, when exposed to the air, becomes dark in colour, and the colour is deepened on the addition of an alkali. On treating Fehling's solution with such a urine, the mixture assumes a brown colour, gradually deepening to black, and a distinct copper reduction takes place on boiling. The abnormal characters of the urine are due, not as was at first thought to a body which was turned "alkapton," but to the presence of pyrocatechin, uroleucic and homogentisic acids. In the allied condition, carboluria, the coloration of the urine is due to oxidation of pyrocatechin and hydrochinon.

The occurrence of alkaptonuria is of importance, not so much from any pathological significance which it is known to possess, as from its liability to be mistaken for glycosuria from its decided copper reducing power. Some time ago a urine was submitted to me for an opinion, as the practitioner had found a marked copper reduction in testing with Fehling's solution, but there was no clinical evidence of diabetes. The patient was an elderly gentleman who was in robust health, and had merely consulted his doctor on account of constipation. The urine was normal in quantity and specific gravity. It was of a rather deep reddish-brown colour. The reaction was acid, and there was no albumin. On treating Fehling's solution with the urine the mixture immediately became of an inky-brown colour, and on boiling there was distinct copper reduction. The fermentation test was negative, and treatment with phenyl-hydrazin yielded no osazon. On leaving the urine in a glass exposed to the atmosphere the upper part became markedly deeper in colour. The condition was typical of alkaptonuria, not glycosuria, and was no doubt to be ascribed to the constipation from which the patient suffered giving rise to intestinal putrefaction and the decomposition of tyrosin in the intestine. A number of similar urines have come under my notice. Futcher (4) records an analogous case where the sufferer was treated by several specialists at different health resorts, and whose life was refused by several Life Assurance Offices on the ground that he suffered from diabetes. The substances grouped under the term "alkapton" are found in normal urine in varying amount, a flesh diet giving a larger excretion than a mixed diet. Various observers have

estimated the quantity as from 3 to 6 grammes in twenty-four hours, or 0·2 to 0·4 per cent.

Pyrocatechin has an active influence upon Fehling's solution. If 2 c.c. Fehling's solution be treated with 0·01 grm. pyrocatechin a deep green colour results, while 0·02 grm. gives a porter colour with distinct copper reduction. Hydrochinon passes into the urine as an ethereal sulphate. Very dilute solutions of this body give a deep brown colour with Fehling; 0·00125 grm. will cause distinct copper reduction, while 0·0035 grm. will reduce all the copper in 2 c.c. Fehling's solution.

It is not my intention in this paper to discuss the difficulties which may arise from the presence in the urine of glucosides other than glucose. Much help may then be obtained from the crystalline form of the osazon crystals. Each has its more or less characteristic appearance, and can be recognised under the microscope, a point which is not sufficiently appreciated. The observation of the melting-point of the crystals is a difficult observation which the clinical physician cannot be expected to carry out.

In conclusion, it might be urged that only under the most exceptional circumstances can kreatinine or uric acid cause any error in the copper reduction test. The change in colour caused by the bodies grouped under the term alkapton is so characteristic that there should be no difficulty in its recognition. No reduction of copper is likely to occur except in the presence of glucose, if the observation be carried out at a temperature below the boiling point. The practitioner usually boils his mixture of Fehling and urine. In this manner errors may creep in from reducing bodies other than sugar. If the urine and copper solution be boiled separately, the test-tubes then removed from the flame, and after an interval of thirty seconds the urine be added to the copper solution, if glucose is present reduction takes place, but no reduction occurs from the presence of the less actively reducing bodies. If any doubt remain, the phenyl-hydrazin and fermentation tests are easily applied and will give very satisfactory results.

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A MORTALITY CURVE FOR PHTHISIS

By W. RAMSAY SMITH, B.Sc., M.B., C.M. (Edin.),
President of the Central Board of Health for South Australia

RECENTLY I was asked to form an estimate of the number of consumptives alive in this State. About three years ago, on the representations of the ravages of consumption by some medical gentlemen who were understood to give accurate voice to a universal feeling in the profession, pulmonary tuberculosis was made a notifiable disease in a new Health Act. It might be thought, therefore, that the task of making an accurate statement of the number of consumptives alive was an easy one—the number of notifications *minus* the number of deaths giving the answer. But when it appeared that, at the end of two and a half years of administration, the number of deaths exceeded the total number of notifications during that period, the situation gave room for doubt, and furnished "food for reflection." In these circumstances it was obvious that an estimate, whether accurate or approximate, must be founded on other data than notifications and death returns.

In the whole range of the literature on consumption there is not, so far as I am aware, any reference to the ratio between the death-rate in consumption and the number of consumptives alive. In searching for data for the problem, I reviewed the various statements regarding the duration of consumption made by Louis, Bayle, Andral, Laennec, Walshe, Fuller, Pollock, Flint, Williams and others; and after an examination of the numbers of the cases and the conditions under which they were recorded, I took the statistics of Louis and Bayle as being the most carefully compiled, numerically the most accurate, and therefore the most likely to yield trustworthy results.

Bayle's 200 cases and Louis's first series have been combined by Dr Clark,[1] who says:—

"The mean duration of phthisis calculated on this table is twenty-three months, that is, including the extreme cases; but it will be observed that one hundred and sixty-two, or more than one-half of the cases, terminated in nine months, and the greatest

[1] See "Cyclopædia of Practical Medicine," vol. iv. p. 276.

proportion of these between the fourth and ninth months. By those that exceed four years, the average duration of the excluding those cases which terminate within four months and remaining cases is eighteen months.

TABLE.

Time.	1. Dead.	2. Alive.	3. Die.	Time.
Months				Months
In 3	8	92	8	From 1 to 3 inclusive
„ 6	30	70	22	„ 4 „ 6 „
„ 9	52	48	22	„ 7 „ 9 „
„ 12	62	38	10	„ 10 „ 12 „
„ 15	72	28	10	„ 13 „ 15 „
„ 18	76	24	4	„ 16 „ 18 „
„ 24	85	15	9	„ 19 „ 24 „
Years				Years
In 5	94	6	9	From 3 to 5 inclusive
„ 10	97	3	3	„ 6 „ 10 „
„ 40	100	0	3	„ 11 „ 40 „

"This table is constructed from the first. The numbers are reduced to proportions of one hundred, and placed so as to exhibit the law of mortality in phthisis. Supposing one hundred persons to be attacked with phthisis at the same time, the first column shows the number who will die by the end of the third month, sixth month, etc., the second column shows the number living, and the third how many die in the various periods of the disease."

Recognising that, while medical practitioners may be the proper persons to collect data of the duration of consumption, the work of reasoning on or dealing with such data properly belongs to the sphere of the actuary or the mathematician, I gave Clark's abstract of Louis's and Bayle's cases to Dr Rogers of Adelaide, requesting him to obtain from some of his mathematical friends an answer to the following question:— "Supposing this goes on without diminution, what co-efficient of the death-rate will give the number of existing cases alive

at any particular time?" Dr Rogers submitted the problem to the Professor of Mathematics in the University here, and Professor Bragg returned as an answer a curve worked out by one of his students, Mr J. R. Wilton. The result is so remarkable that I have no hesitation in making it public as one of the most important statistical inductions in recent times with respect to consumption. It is as follows :—

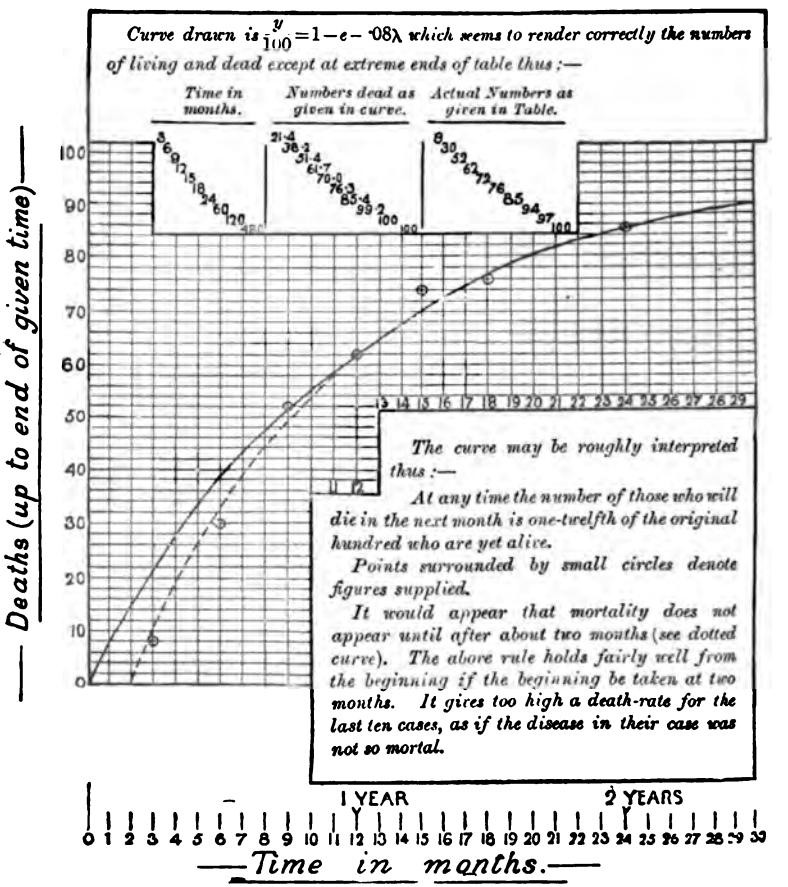
Curve drawn is $\frac{y}{100} = 1 - e - \cdot 08\lambda$ which seems to render correctly the numbers of living and dead except at extreme ends of table thus :—
Time in months.
Numbers dead as given in curve.
Actual Numbers as given in Table.
The curve may be roughly interpreted thus :—
At any time the number of those who will die in the next month is one-twelfth of the original hundred who are yet alive.
Points surrounded by small circles denote figures supplied.
It would appear that mortality does not appear until after about two months (see dotted curve). The above rule holds fairly well from the beginning if the beginning be taken at two months. It gives too high a death-rate for the last ten cases, as if the disease in their case was not so mortal.
— Deaths (up to end of given time) —
1 YEAR
2 YEARS
— Time in months. —

CHART I

As Mr Wilton points out, the curve may be roughly interpreted thus :—" At any time the number of those who will die in the next month is one-twelfth of the original hundred

who are yet alive. Points surrounded by small circles denote figures supplied. It would appear that mortality does not appear until after about two months (see dotted curve). The above rule holds fairly well from the beginning, if the beginning be taken at two months. It gives too high a death-rate for the last ten cases, as if the disease in their case was not so mortal."

Now, as applied to an actual case, what does this mean? One-twelfth part of every original hundred alive at the beginning of any month will die by the end of that month; therefore, in a community where consumption is neither increasing nor diminishing, twelve times the monthly death-rate will equal the number of consumptives alive at any given time; in other words, and speaking roughly, the annual total of deaths is the number alive.

In order to see how far this might vary in other sets of cases, I combined Louis's first series of 114 cases with his second series of 193 cases, and gave Mr Wilton the figures in greater detail. They are as follows:—

DETAILED STATISTICS OF LOUIS'S TWO SERIES OF 307 CASES.

Duration of Disease.	Deaths.	Duration of Disease.	Deaths.
22 days	1	10½ months	1
24 ,,	2	11 ,,	10
30 ,,	1	12 ,,	13
35 ,,	3	12½ ,,	3
39 ,,	2	13 ,,	2
40 ,,	1	13½ ,,	2
45 ,,	1	14 ,,	9
50 ,,	2	14½ ,,	2
52 ,,	1	15 ,,	10
60 ,,	1	17 ,,	6
70 ,,	1	18 ,,	1
75 ,,	1	19 ,,	5
80 ,,	1	20 ,,	4
81 ,,	1	21 ,,	2
84 ,,	1	23 ,,	3
3 months	7	24 ,,	18
3½ ,,	5	28 ,,	1
4 ,,	17	30 ,,	3
4½ ,,	2	36 ,,	9
5 ,,	19	39 ,,	1
5½ ,,	4	48 ,,	11

Duration of Disease.	Deaths.	Duration of Disease.	Deaths.
6 months	25	60 months	6
6½ ,,	2	66 ,,	1
7 ,,	16	72 ,,	4
7½ ,,	6	84 ,,	1
8 ,,	17	90 ,,	1
8½ ,,	1	120 ,,	1
9 ,,	20	144 ,,	2
9½ ,,	2	168 ,,	1
10 ,,	10	240 ,,	1
		Total	307

These Mr Wilton has represented by another curve, thus :—

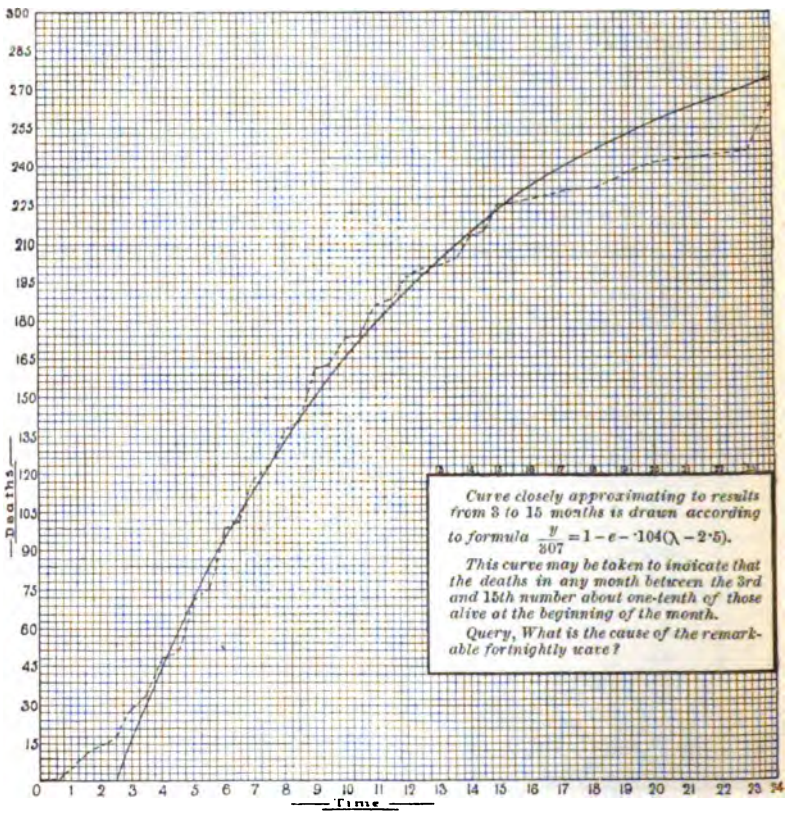
Deaths
Time
Curve closely approximating to results from 3 to 15 months is drawn according to formula $\frac{y}{307} = 1 - e - \cdot 104(\lambda - 2 \cdot 5)$.
This curve may be taken to indicate that the deaths in any month between the 3rd and 15th number about one-tenth of those alive at the beginning of the month.
Query, What is the cause of the remarkable fortnightly wave?

CHART II

On this he remarks :—" This curve may be taken to indicate that the deaths in any month between the third and fifteenth number about one-tenth of those alive at the beginning of the month. Query. — What is the cause of the remarkable fortnightly wave ? "

To show how nearly the calculated figures correspond with the actual numbers as given in the tables, I here give them in detail.

BAYLE'S CASES AND LOUIS'S FIRST SERIES (as *percentages*).

Time in Months.	Number Dead, as given by Curve.	Actual Number, as given in Table.
3	21·4	8
6	38·2	30
9	51·4	52
12	61·7	62
15	70·0	72
18	76·3	76
24	85·4	85
60	99·2	94
120	100	97
480	100	100

LOUIS'S TWO SERIES COMBINED (Actual Numbers).

Time in Months.	Calculated Number of Deaths.	Number of Deaths according to Louis's Table.
3	16	27
3½	30	32
4	45	49
4½	58	51
5	70	70
5½	83	74
6	94	99
6½	105	101
7	115	117
7½	125	123
8	134	140
8½	142	141

Time in Months.	Calculated Number of Deaths.	Number of Deaths according to Louis's Table.
9	151	161
9½	145	163
10	166	173
10½	173	174
11	180	184
12	193	197
12½	199	200
13	204	202
13½	209	204
14	214	213
14½	219	215
15	224	225
17	239	231
18	246	232
19	232	237
20	237	241
21	262	242
23	271	246
24	274	264
60	306	295
120	306·997	303

In considering these results, and in estimating average durations, it must be remembered that the disturbing influence of one or two long continued cases of phthisis is very great. Further, in applying them to any particular community the following facts must be carefully considered :—

1. The general lengthening of the duration of the disease that one might expect from improved or selected climatic conditions, drug treatment being equal.

2. The number of cases imported into the community in various stages of the disease, which would diminish the average duration.

3. The number of cases cured, which would further tend to diminish the average duration, and in some instances in a very great degree.

Taking all these things into consideration, and observing how they tend to neutralise each other, one may accept Mr Wilton's curve and its interpretation as being a very accurate

means of estimating from the death-rate the number of consumptives alive at any time in an average community.

I do not mean to say that these statements are above criticism. Far from it; in themselves they suggest criticism; but I doubt if any criticism will invalidate their practical value in furnishing a basis for philanthropic or government measures in small states and local communities. To the physician who observes "the times and the seasons," Mr Wilton's query regarding the fortnightly fluctuation will be a matter of much interest. And in case it be said that I have not defined what is meant by the number of consumptives alive, I would state that I have not forgotten, although I have omitted from the calculation, the number of consumptives who will not come under medical treatment, but who will nevertheless recover. In fact, to the scientific inquirer, nothing is more suggestive than the statements of Professor Brouardel and others at the recent British Congress, regarding the large number of cured cases observed *post-mortem* without any history of the disease, and the comparison of these with the percentage of cures in those who undergo a course of drug or other treatment—even granting that less competent observers than Professor Brouardel may make mistakes by attributing to previous pulmonary tuberculosis all, or most, cicatrices and calcareous deposits found in the lungs.

SOME SOUTH AFRICAN EXPERIENCES

6 ATHOLL PLACE,
EDINBURGH, *August* 1902.

DEAR SIR,—The following experiences may interest the readers of *The Scottish Medical and Surgical Journal.* One evening at Norval's Pont we were discussing the insensibility of the coloured man to pain. One of our guests and patients, a captain in Brabant's Horse, recounted his experiences. They seemed to me so interesting that I asked him to write them down. He was a Johannesburg mine-owner, who had taken part in three native wars, and was then with his three sons serving in Colonial corps. I saw a good deal of him while he

was under my care, and he impressed me very favourably as a man whose word could be trusted in the smallest detail.

I am,

Faithfully yours,

FRANCIS D. BOYD.

THE EDITOR,
The Scottish Medical and Surgical Journal.

EDINBURGH HOSPITAL,
SOUTH AFRICA.

MY DEAR DOCTOR,—You have asked me to write down some of my South African experiences as a rough and ready helper of wounded men during the past wars. I do it with pleasure, asking for your indulgence if I preface the short account of my doings by a few words on native wounded subjects. It has struck me many a time that Kaffirs do not feel pain in the same degree that Europeans do; also that the recovery from severe disablements is in the native more rapid and far more frequent than in the European. About the end of January 1878, I being then in command of a large district in British Kaffraria, attacked the Kaffirs in a thick bush. They took refuge in a large kopje formed of enormous boulders piled up and leaving underneath a number of caves, where they were well sheltered from our fire. After driving them away from their fastness, I visited the caves and found one of the Kaffirs with a fearful scalp wound, but still breathing. I had him carried out in the open, and, having no doctor with my force, I set about doing my best for the poor fellow. The wound extended from the top of the head some six inches down the left side, and consisted of the exposition of the bone for a couple of inches all round, and the displacement of a piece of the cranium itself about one inch and a half each way. The brains were exposed but not disturbed. The piece of the scalp had been torn in a triangular shape, the base being downward from the ear to the neck. The wound was evidently the result of a fall from some rocks above As well as I could I put the piece of bone in its place, put some stitches to bind the scalp, cut the wool off along the suture and left him where he was, confident that his people would come and take him away as soon as we left the bush. Four days afterwards the fellow came to my laager to ask for "medicine." I looked at his wound. The stitches had been removed, the piece of bone taken off and a piece of rag bound round his head to keep the skin in its place. Nothing I could say had any effect in allowing me to touch his head, the Kaffir doctor had put a "charm" on it and it was all-right. I saw the

man some months after quite well and cheerful; the scalp had healed leaving a hiatus of skin nearly two inches wide but covering the hole where the bone had been broken and taken off, and the Kaffir has to this day never suffered any inconvenience from his incomplete cranium.

In February of the same year and near the same place after a tough fight, I discovered a wounded native crawling towards a pool of water near at hand. His wound was fearful! The abdomen was ripped open right across by a Snider bullet; his entrails protruding, one of the small intestines severed, the two ends trailing on the grass as he crawled along. My medicine chest, carried in my pocket, consisted of some pins and needles, white thread, a pair of sharp scissors, and a two-bladed knife, one of the blades kept always very sharp. I turned the poor chap on his back, brought him water in my helmet, and began to do for him what I could. The puzzle was how to unite the severed intestine. Now, close at hand, growing out of the pool of water I spoke of, were a number of "Spanish Reeds." These reeds are a kind of exaggerated grass an inch in diameter when full grown, resembling the Camboe in so far that there are "knots" or joints every nine inches about. I chose one of these just coming out and therefore quite soft and pulpy, half an inch in diameter; I cut a length two inches and a half with a "knot" at the middle to keep it strong enough to bear fair pressure. With my sharp knife I fashioned it slanting inward so as to enter the intestine easily, I carefully took the core out of the "knot" and I had a tube of soft vegetable substance likely to bring my intended operation to a successful termination if recovery was at all possible. Going back to my patient I inserted my tube in both the dissevered ends of the intestine, put in three stitches to keep them together, gathered all the bowels into the peritoneum, stitched it, stitched also the thick abdominal covering, and bidding my patient good luck I left him in charge of a native prisoner whom I released for the purpose. Less than a month afterwards a stalwart, healthy-looking Kaffir appeared before me, bringing two fine cows which he wanted the "Inkosi" to accept. This Kaffir was my patient, perfectly recovered; the only trace of the wound left being a long thin scar on the abdomen.

One more instance of wonderful endurance and recovery and I think I will have made a fair case to prove my contention that the native does not feel pain in the same way that we do.

At Morosi's mountain in 1880 I was sent in command of a patrol to look for a body of some eighty Baputis said to be hidden in the mountains near the sources of the Guinting, a tributary of the Orange River. We found the enemy, dispersed some, killed a few, and wounded some more. Among the

wounded was a tall native who, jumping over the wall of a schantz, ran fleetly down a grassy hill hoping to escape. A Snider bullet broke his thigh, he rolled over, and crawling to an ant-hill sat on it until we came to him. I had him carried to where we were bivouacking. There he made a very good meal of meat and biscuit, cheerfully talking all the time. Two of our party were going back to the head camp and we were discussing how to get the wounded man to camp, distant some thirty miles. We had captured a mare the same morning; the wounded native very much astonished me by saying that if I would allow him he would ride the mare to the camp! Now I had examined his leg, the bone was smashed beyond doubt. Well, he rode to camp the same day; and, when he arrived there, Dr Cumming wanted to cut off his leg as the only means of saving his life. The native stoutly refused amputation and said he would live or die with his leg on. He was carried a mile from the camp and left there. Some three months later, the war being over, the fellow limping along easily, presented himself and gleefully said that his "leg was very good, heaps better than a wooden one."—Believe me, dear Doctor, yours sincerely, COLONIST.

THE COURSE IN MEDICINE AT THE UNIVERSITY OF PENNSYLVANIA

By J. H. MUSSER, M.D.,
Professor of Clinical Medicine

AT the request of the editor, a statement of the course of instruction in the University of Pennsylvania, preliminary to the examination for the degree of Doctor of Medicine, is here presented. Without the roster before me a portion of it may not be strictly precise; the portions describing the courses in medicine and in pathology are accurate, as the former belongs to the department with which I am in practical contact; while, for the latter, the first assistant in pathology has just given me the complete outline. The notes on surgical, obstetrical and gynecological teaching, and other specialities, minimise rather than exaggerate the work in these departments. The courses in anatomy, physiology and chemistry will be referred to in a general way only.

The main object is to show the degree of relationship between didactic and laboratory and clinical teaching. Clinical teaching should be in truth called laboratories of teaching. It has come to pass that to didactic teaching less time in the course is given than formerly, a most advantageous change for

the student. However, it cannot be gainsaid that a certain amount of such teaching is of value, especially if it could be so arranged, a not impossible matter, as to crystallise and summarise the laboratory and the clinical teaching in the didactic lecture. To accomplish this the professor of medicine, for instance, would have to be in touch with the entire clinical work of his department. One can readily see how the ideal teacher could arrange, classify, compare, and comment upon the vast array of facts the student would gather from day to day in the wards.

It may be said the larger schools with hospitals and laboratories at their command, within slight variations, employ the same method of instruction as the University of Pennsylvania, relegating didactic teaching to the rear. Harvard University employs the concentration method in the first two years of the course.

The order of studies in these years is as follows:—

First Year.—First Term—Anatomy and Histology. Second Term—Physiology and Physiological Chemistry.

Second Year. — First Term — Bacteriology and Pathology. Second Term—Anatomy, Clinical Chemistry, Materia Medica and Therapeutics, Theory and Practice, Clinical Medicine, Surgery and Clinical Surgery.

In the University of Pennsylvania a modified concentration method is adopted, by which anatomy and pathology are continued more or less throughout three years. The laboratory teaching far exceeds the lecture-room work. In the well-known courses of Johns Hopkins University, with its superb laboratory and hospital foundations, the time relation of didactic and laboratory teaching similarly obtains. Notwithstanding the comments of one of the teachers of Harvard University in a recent paper on Medical Education, that the institution to which he belonged allowed more hours for each student in practical bedside work than any other, the difference is not great, even when based on the statements in the catalogue, a source which cannot accurately give the number of hours each student devotes to a special line of studies.

At the University of Pennsylvania the *first year* is occupied with work in anatomy, physiology, general chemistry and hygiene. In the *second year*, physiological and clinical chemistry, pathology and bacteriology are added to anatomy and physiology. Materia medica is taken up and completed this year, and preliminary instructions in medicine and surgery instituted. Lectures on the history of medicine and practical work in bandaging and operative surgery and in physical diagnosis are begun. The *third year* is devoted to medicine,

surgery and obstetrics. Three didactic lectures per week in medicine, two in surgery and two in obstetrics are attended this year, as well as the general clinics. One hour a week is given to ward classes in medicine and in surgery. Applied anatomy is taught thoroughly in this year. Pathology and bacteriology are continued. The *fourth year* is the clinical year. The general subjects of medicine, surgery, obstetrics and gynecology, and the special branches of ophthalmology, otology, dermatology, laryngology, orthopedics, legal medicine, nervous diseases, insanity, and diseases of children are taken up. The latter, the special branches, are termed electives. Compulsory attendance is required upon the general subjects, and upon four of the electives. The course in surgery is in general like that in medicine, which will be outlined later.

The Course in Pathology.—The student begins work in the second year. Three lectures each week on *General Pathology*, one hour each in length, and one recitation of one hour are given. The recitation is really a conference, the work of the week being talked over, doubtful points cleared up and some topics enlarged upon. A written examination is held at the end of the year. Pathological histology is taken up also in this year, covering a period of four months. Three exercises of two and a half hours each are conducted, accompanied by gross demonstrations illustrating the work of the day. At the end of the period a practical examination is held, the student being required to recognise and describe six sections.

In the third year pathological anatomy follows. A laboratory talk followed by demonstrations, lasting two and a half hours, takes place twice a week and continues four months, followed by written and oral examinations. In addition, autopsies are conducted once a week for four months before the entire class, students in groups of six doing the work under the direction of the professor or first assistant. Compulsory attendance in groups of ten to fifteen at autopsies in hospitals with which members of the pathological staff are connected.

In the fourth year, the students have opportunity to attend autopsies, although it is not compulsory.

The professor of surgery holds one large clinic and two clinics to smaller numbers of students. The professors of clinical surgery hold clinics to small groups and clinics on surgical pathology and on surgical diagnosis. The individual student is drilled in anæsthesia, the principles and practice of asepsis, the X-ray, bandaging, and minor surgery. Each one has an opportunity to assist at operations. The course in obstetrics requires personal attendance upon at least six cases of labour, made possible by the custom that obtains in our large

cities of students attending midwifery cases which have been registered at a dispensary, and by the ample hospital for this purpose, recently erected through the efforts of the professor of obstetrics. The course in gynecology is practical. Students examine cases for diagnosis and assist in operations. Lectures, with the aid of the lantern, are given to illustrate the clinical demonstrations.

The Course in Medicine.—In the latter half of the *second year* laboratory drills in topographical anatomy, and in methods of physical examination are taken up. Healthy subjects are employed for the exercises. The students are grouped in classes of eight to ten, a demonstrator supervising each group. Twenty practical lessons are given. The use of instruments of precision are also taught. In the latter half of this year a course in the microscopical examination of the blood, urine, sputum, etc., is given to impress clinical laboratory methods. An examination of a practical character is held upon each division of the subject.

Third year.—Each week three didactic lectures on medicine and a general medical clinic, all by the professor of medicine, are given, and an observation class is conducted by the assistant professor in medicine. This class is divided into three sections, and the morphological alterations resulting from disease are studied. Each student has a term of two and one-half months. Out-patients are employed. Changes of colour, shape and size, general and local, of expression, of motion, including gait, reflexes, etc., are demonstrated. The class is also divided into sections of ten, and taught objective medicine at the bedside. Work in the clinical laboratory is conducted in sections of fifteen, the study of the blood, urine, sputum, and other secretions being continued. In sections of five the class is also in the out-patient department taught methods of history taking. All the practical work is compulsory, failure to attend these demonstrations subjecting the student to dismissal. Each student receives instruction six hours a week in the hospital and the laboratory. An examination upon the didactic lectures is held at the end of the year.

Fourth year.—Each student is required to attend two clinical conferences of two and one-half hours each; one ward class a week during the term, and exercises in the dispensary laboratory of clinical medicine. All of the patients in the medical wards are assigned to the students for study, two students to each case —the ward and the laboratory always at their command, so that they can work with every convenience. He attends one lecture on laryngology and one ward class for two months, receiving a drill in laryngoscopy. A clinical lecture on diseases

of children is given by the professor of this branch, who also holds ward classes. Clinical lectures and ward class demonstrations in nervous diseases are also given independently of the general medical clinics. The ward classes are held in small rooms adapted to this purpose in the University and the Philadelphia Hospitals. Each demonstrator directs a class of eight, and has for the use of each section a complete outfit of instruments of precision for physical, microscopical and chemical analysis. The class is divided into two sections for the clinical conference; one half attending the conference of one of the professors of clinical medicine, the other the conference of the other professor. The entire class is thus in attendance at one time. The conference is conducted as follows:—

The patients in the wards are assigned to the students for study. At each conference the patient to be studied that day is brought in, and the two students who have studied it, taken the history, examined the blood, urine. etc., and made the physical examination, report the result of their studies and present their reasons for their diagnosis to the class. The professor and students then discuss the methods of inquiry, the results obtained, and the conclusions. Unusual phenomena are examined by each student. The case is made the basis of work ranging over several weeks. Unusual features are made the subject of brief papers by students who are assigned to prepare them for subsequent meetings. A brief note of historical interest is expected from one. Museum specimens illustrating the morbid anatomy are brought forward by another student. A third presents an analysis of all the cases observed in the hospital for one, two, three years, or more, the longer periods depending on the frequency of occurrence of the diseases in question. A fourth will present a resumé of his personal experience, based on cases observed in the ward classes of the third and fourth year, and in the general clinic. The lantern is constantly used and the professor comments on the clinical study, the various papers, the specimens, etc. It is thus seen that one case may give employment to six to ten men. It is further seen that the student must keep notes of all his work.

To keep the cases in constant mind, committees of the class are formed to consider special topics which the conference may illustrate. Thus a committee on tuberculosis reports upon and analyses all the cases considered during the year. A committee on the anæmias consider this topic. Another may have to discuss the symptom "fever," as it was observed in the respective patients. Then, too, the student is taught the card cataloguing of the diseases and symptoms of which they have made notes. The object is to teach how to collect knowledge, how to

analyse it, how to classify it, how to have it at one's command, how to made it *personal*—a part of one's self.

It is thus seen that the ward classes in the third and the fourth year eminently teach how to acquire facts, and how to reason about them, and the conferences how further to arrange and classify the facts and show their relative value. Moreover, the conferences enable the student to acquire a knowledge of the history of medicine, and of the relations of morbid anatomy to clinical phenomena. It endeavours to instil early in the career of the students the habit of systematic arrangement of knowledge. The notes and the card catalogues are of certain value in the making up of the student's examination average.

In short, any student who wishes can be employed constantly during the fourth year in the study of the clinical side of medicine, surgery and obstetrics. All students must be employed a considerable part of the time.

SOME THOUGHTS ON THE RECONSTRUCTION OF THE PRESENT METHOD OF MEDICAL EDUCATION[1]

ANONYMOUS

THE more one comes in contact with medical students, the more is one impressed by their weariness of the medical curriculum as at present arranged. Almost with one voice they condemn the lecture theatre; and one feels that were it not for the compulsory attendance necessitated by the taking of cards, the benches would present very different aspects from what they do. The dangers of losing card-days are even braved by students, and this risk is run not merely by the careless and inattentive, but by the studious pupil as well. The latter feels that too many precious hours are misspent in listening to lectures, and that the same number of hours could be much more profitably employed in mastering one of the well-written text-books.

As would be naturally expected, this weariness is not so marked at the commencement of the session; but sooner or

[1] The Editors are not to be held as approving of the somewhat iconoclastic reforms advocated by the author of this paper. But reforms are not to be made with rose-water, and they will be willing to publish any defence of the present system which may be forwarded to them.

later the disease makes its appearance, and as the weeks drag along it rapidly increases the number of its victims. The first-year student is to a great extent free from this weariness, and thus the lecture halls for Anatomy, Chemistry, Botany and Natural History are well filled during the greater part of the session. We can hardly call such courses as Descriptive Anatomy or Chemistry attractive, and it is simply because the student is fresh to the whole course that he faces the ordeal of the daily lecture. This laxity of attendance becomes more and more marked as the successive years of the curriculum run on, and even the attractive personality of the teacher hardly overcomes this tendency to abstention.

The reason of this lecture weariness is not far to seek. How seldom do we who are teachers attend the prelections of even a noted man? The distaste was given to us as students and cannot be overcome. How different is the attendance at "practical classes." The student desires to work—head and hand want to act together as they were intended to do, and as they certainly do when we go into practice. It is an ascertained fact that the attendance of students at practical classes is excellent. The number of cards missed is very small compared to those missed at systematic lectures. Take, for example, the class of Practical Anatomy. The student is not compelled to attend daily, and yet one may venture to say that there is hardly a single student who does not devote several hours each day to dissection during the first two years. The student attends enthusiastically to this branch because he has the opportunity of working both manually and mentally.

Take again the class of Physiology. Here also we find an excellent attendance, simply because so much of the course is spent in practical work or in practical demonstrations.

In brief, the more practical the course is made, the better the attendance of students will be. The lesson is, therefore, that practical work ought to replace to a very great extent theoretical lectures. This is granted by teachers themselves but seldom acted upon, no doubt because much greater labour is involved in the preparation of demonstrations as compared with the preparation of lectures.

The whole medical curriculum requires remodelling to suit it to present-day requirements. Extra classes have from time

to time been added to the already too lengthened course in the vain hope of bringing it up to date. In almost every other department, methods of education and training have undergone an entire change. As regards the Medical curriculum, however, we are merely treading in the same path as was followed a hundred years ago, the only difference being that we have lengthened it.

Let it be clearly understood that the time for giving courses of a hundred or more lectures is past. Not for a moment do we doubt but that long courses of lectures were useful when good text-books were few, expensive and either badly or not at all illustrated, and when the medical student had not too much money to spend. At the present time these conditions are entirely changed. Text-books are almost without number, nearly all are excellent and most are finely illustrated, in fact, the diagrams and figures in these far surpass those usually shown in the lecture hall. These books, in addition, are cheap as compared to the cost of a course of lectures, and contain as a rule much more than any teacher can impart in his course.

So far our criticism has been solely destructive. Let us turn to construction. Instead of hundreds of hours devoted to the hearing of lectures (much of what is heard being either misunderstood, as evidenced by the examination papers, or immediately forgotten), we want to have many short and practical courses. The habit of note-taking is now largely and happily in desuetude, but the expressionless and vacant countenance, or the sleepy, drooping eyelids of many students must be to the lecturer a frequent and annoying spectacle. The student has to attend far too many long courses of lectures, and instead of adding to these our object ought rather to be to cut down those already existing. Each course should be confined to a comparatively few theoretical lectures, while a large number of practical demonstrations should be added. A few of the present courses are in our opinion altogether unnecessary and might be with benefit omitted from the curriculum.

Let us see how the curriculum could be modified to make it more practical and useful. There is much to be said in favour of the subjects of Botany and Natural History being

included in the Preliminary Medical Examination. In many schools these subjects are taught by non-medical graduates, and as their originally close relation to medicine has been entirely divorced, there seems to be really no need to retain them as at present taught in the medical curriculum.

If, however, they must be kept in the present curriculum, then certainly some alteration in the present method of teaching these subjects ought to be formulated.

As regards Botany, twelve or fifteen lectures on the general principles would suffice, with an equal number of practical or field demonstrations and examination of microscopical specimens.

In Natural History a careful dissection of each of the chief types, together with a few descriptive lectures, would form a perfectly adequate introduction to the subject so far as is necessary for the medical student. The relations of both these subjects, Botany and Natural History, to practical Medicine and Surgery, ought to be much more clearly shown to the student than is the custom. At the present time it is almost unnecessary to have medical graduates filling the posts of lecturers on these subjects, as their bearing on the later medical studies of the student is hardly alluded to. Originally both of these subjects were in close association with the other subjects of medical study, and the lecturers being in each case medical graduates, were able to familiarise the student with plants and animals which later on in his studies he would meet with.

In Botany, for example, in view of the student's later study of the bacteria and moulds, the lower forms of plant-life should be particularly studied. In Natural History, on the other hand, the protozoa as being the cause of many diseases in man should be carefully studied, as well as the life history and relationship of many of the parasitic worms. A specialised study of each of these subjects to the needs of the medical student would be of much greater value than the courses as at present delivered.

As regards Chemistry, explanations of the preparation or manufacture of certain substances takes up much time, and even when these processes are mastered by the student, they are of very little practical benefit. Such descriptions might with

advantage be omitted. On the other hand, the dangers to the health of operatives during manufacturing processes might be alluded to. Only a few lectures with numerous practical demonstrations would suffice for the branch of Inorganic Chemistry. The subject of Organic Chemistry, of much greater value to the student in view of his study of physiological and pathological processes in the human body, ought to have a much larger part of the course devoted to it. What is taught at the present time in the class of Practical Chemistry is quite inadequate to the needs of the medical student. Consider for a moment whether one has ever since graduating had to test a simple salt for acid or base. Even a short and simple course of Analytical Chemistry would be of infinitely greater value, and could be perfectly easily taught in the many chemical laboratories which exist.

Lectures on Anatomy are recognised by all as superfluous. The science can only be mastered by patient dissection. Formerly, when subjects were difficult to obtain, the chances of each student becoming familiar with the relations of structures by personal dissection were perhaps small. Lectures on a cadaver might then have served a useful purpose. At the present time such lectures, even when given by the best anatomists, are absolutely a waste of precious time. This course of lectures might quite well be omitted from the curriculum.

Every professor of Physiology knows that he must supplement his course by numerous practical demonstrations. So much is this recognised that practical classes in Physiological Chemistry and Histology are compulsory. For the medical student, however, the subject of Physiology has undergone too great a specialisation. The needs of practical medicine ought to be much more constantly borne in mind by the teacher of physiology. While of the greatest scientific interest, much of what is taught is of little value to the student or practitioner. The electrical reactions of muscle and nerve, negative variation, electrotonus, etc., might be dismissed very summarily, while the importance of the normal reaction of muscle and nerve to electrical stimuli and their altered action in disease might be more impressed on the student. Theorising ought as much as possible to be avoided, while greater attention should be paid to

those facts which have been clearly demonstrated and are of practical value. An ordinary student cannot be expected to know everything, and, least of all, about theories, but he ought to have mastered general principles. The minutiæ of physiology can be safely left to those going forward to Honours, or to Science students. While granting that a thorough knowledge of physiology is of very great importance, it should not be forgotten that it forms but one subject out of some twenty which the student is expected to know well.

Before passing on to further studies, the student would then be examined in these allied subjects of Anatomy and Physiology. As a rule, too little latitude is given to the student in the written paper. He ought to have a fairly wide choice of questions, and not be compelled to answer say three out of four set questions. The oral and practical part of the examination should be thorough. In this the student ought to have ample time given, and he should not be hurried through as is the custom at present. Instead of there being only two examiners in each department, many more might be added, and thus the undue haste which at present characterises some examinations would be done away with.

The first two years having been devoted to what may be termed preliminary education, the student would then pass on to the special study of his profession. Surgery would naturally first claim his attention. Theoretical discourses in the lecture hall might be very largely replaced by Clinical lectures and demonstrations in the hospital theatre, when living examples to illustrate the points lectured on could be shown. At present lectures on Surgery are entirely theoretical (tutorial classes on bandaging and splints hardly count), or at most are merely illustrated by diagrams or bleached specimens which are generally unintelligible until they have been explained. Hence such systematic lectures on Surgery are of little practical value, whereas lectures on Clinical Surgery are always interesting and valuable. Operations could also be performed in illustration of the lectures, and in this way the two chairs of Surgery and Clinical Surgery might be merged into one, with benefit to the student and economy to the school. At least, however, the present anomalous condition of having the two chairs of Systematic Surgery and Clinical Surgery entirely apart ought to be

rectified. A comparatively short systematic course of lectures would suffice to impart all the essential points in Surgery.

The class of Materia Medica might also be greatly modified. Descriptions of and tests for drugs should surely be dispensed with in lectures, while greater attention might very profitably be devoted to the action and uses of well-known and useful drugs. A very large number of drugs are seldom or never employed at the present time, and the description of these should be omitted. On the other hand, the newer fields which are constantly being opened up, as, for example, organo-therapeutics or the employment of light of various kinds in the treatment of disease, should require consideration. A little more time devoted to the action of drugs as poisons and to the symptoms induced by poisonous doses would do away with the necessity of having a chair and lectures on Medical Jurisprudence. Modern advance has rendered the latter chair almost unnecessary. Every subject treated of in a course of Medical Jurisprudence is borrowed from other courses. Injuries, stabs, fractures, etc., are more fully treated of in Surgery; offences against chastity, abortion, signs of recent or remote delivery, are better treated of by the teacher of Obstetrics; the precautions observed in examining people for life assurance fall more naturally to be described by the teacher of Medicine; toxicology is treated of in the class of Materia Medica; the old time-worn tests for poisons still described by lecturers on Medical Jurisprudence are seldom applicable in practice to the detection of poisons in the viscera or tissues. When cases of poisoning do come up for investigation, a skilled analyst or pharmacologist is employed to do the work of detection; *post-mortem* examinations are more satisfactorily conducted by the skilled pathologists attached to a hospital. Altogether, the course of instruction in what is called Medical Jurisprudence is a solecism, and the class might well be abolished from the medical curriculum. In the Faculty of Law this course would remain, though one gravely doubts the wisdom of giving to lawyers the smattering of knowledge which they must and do get from such a heterogeneous course.

What applies to Surgery, applies in like manner to Medicine, Midwifery and Gynecology. The lectures on these should be largely given in the hospital theatre or in the

Maternity wards, where illustrative cases could at once be shown and the correctness of diagnosis proved by the results of treatment or by the *post-mortem* examination. This dis-association of the lecture teaching from the hospital is not merely a disadvantage, but an absolute misfortune to the student. We affirm that the long systematic course of lectures is unnecessary now. The time of both teacher and pupil could be much more usefully and interestingly spent in the observation and study of cases of disease, with brief descriptions of the pathological changes and treatment to be adopted added.

Pathology should not be studied previous to the commencement of Clinical Medicine, but coincidently. If the student begin Pathology before Medicine, he is soon landed in hopeless confusion. Clinical Medicine clears up the way for the proper study of Pathology. The latter ought to be made as far as possible practical, as, for example, demonstrations of formalin-preserved specimens, lantern and microscopic demonstrations, together with frequent attendance at carefully conducted *post-mortem* examinations, and individual work at Bacteriology. Special attention should be given to Clinical Bacteriology.

We then come to what may be termed extra, though quite as important, subjects. Occupying a first place amongst these is Public Health and Sanitary Science. Instruction in this ought to a very large extent to be practical, actual demonstrations of the examinations of air, water, disinfectants, etc., visits to sewage disposal and water works, examination of insanitary dwellings, public abattoirs, inquiries into various manufactories, nuisances, etc. At the same time the student should attend a course of instruction at an Infectious Diseases Hospital, and thus the preventive treatment of such cases could be followed more easily.

Then would follow attendance and demonstrations at a Lunatic Asylum, in the Ophthalmological and Dermatological wards, together with a few attendances at the out-patient department of a Dental Hospital—the extraction of teeth being an almost daily duty of the country practitioner. As regards Vaccination, every student should himself perform the operation on several infants, and not merely, as at present, watch the teacher of vaccination doing so. Certificates of Proficiency are

often granted to students although they have never actually vaccinated a child.

Six months' attendance at a dispensary ought to be compulsory. It is only by this work that a student becomes familiar with such cases as will make up his practice later on. In the hospital ward only the graver and more out of the way cases are received, but at the dispensary all sorts of cases come for treatment.

With reference to the Final Examination the stringency of the Surgical examiners might be judiciously lessened. After all, only a small proportion of graduates become operators to any extent in Surgery; on the other hand, however, everyone must become a practitioner in Medicine and an Obstetrician. The examinations in the latter two branches ought to be thorough and much more practical than at present. Each student should have several cases to diagnose instead of merely one or two. He should be examined in the prognosis of each and the treatment to be adopted.

It would be more consistent with the dignity of a University to have two Final Examinations yearly rather than the Extra examination in the autumn, when, as is well known, almost all those who have failed in one subject in July are re-examined and allowed to graduate. Six months is surely a short enough period to allow of a student working up the subject in which he has shown so much ignorance as not to have satisfied the examiners.

Our plea is that the whole curriculum wants remodelling on a practical basis—less talking to and more working by the student. Such a change would most certainly result in a great benefit to both teacher and taught; and our young graduates would go forth much better equipped for their future work, and not as they are sent out now, when the practical part of their profession has to be learned to a great extent amongst the general population.

By a reconstruction of the Medical Curriculum in some such way as has been indicated, the Edinburgh School might be made to regain its ancient prestige as a truly practical and thorough teaching institution.

Medical Education in Scotland

IN order to obtain in Scotland a legal qualification to practise medicine, the student must conform to the regulations of the General Medical Council: he must pass a preliminary examination recognised by the Council; must then register as a medical student; must study at a recognised medical school for a period of at least five years after registration; and having then obtained a registrable degree or diploma, this qualification must be recorded in the *Medical Register*.

Each University confers four registrable degrees: Bachelor of Medicine and Bachelor of Surgery (M.B., Ch.B.)—which must be obtained and conferred at the same time, and which cannot be obtained until the candidate has attained the age of twenty-one years—Doctor of Medicine (M.D.); and Master of Surgery (Ch.M.). The three medical corporations, the Royal College of Physicians of Edinburgh, the Royal College of Surgeons of Edinburgh, and the Faculty of Physicians and Surgeons of Glasgow, co-operate in conducting conjoint examinations for the "Triple Qualification" (L.R.C.P.E., L.R.C.S.E., L.F.P.S.G.), which likewise admits to the *Medical Register*.

The Universities

PRELIMINARY EXAMINATION.—Each student must pass this examination before commencing medical study. At the matriculation office of each University, candidates can obtain schedules, which must be filled up and lodged not later than certain dates in March and September respectively. The fee for examination is 10s. 6d., and should be paid at the time of lodging the schedule. Candidates are examined on the following subjects:—

(1) *English.*—There is one paper comprising two questions on British History, two on Geography, four on Grammar (correction of sentences, parsing, analysis of sentences, and derivations), two of a literary and general nature, and the candidate has also to write an essay and paraphrase a portion of verse. Answers are required to eight questions, and one answer in History, one in Geography, the essay and the paraphrase are essential.

(2) *Latin.*—Translation, Parsing, Grammar, Prose Composition, and Sentences.

(3) *Elementary Mathematics.*—(*a*) Arithmetic (fractions, proportion, percentage, square root, and simple interest); (*b*)

Algebra (fractions, factors, square root, equations of the first degree, simultaneous equations of the first degree, quadratic equations and problems leading thereto); (*c*) Geometry (Euclid, Books I., II. and III., or their equivalents, with simple deductions).

(4) *Greek, or French, or German.*

French or German.—Grammar, translation into English and into French or German, and short idiomatic sentences for translation from English.

Greek.—Grammar, translation into English, and of short sentences into Greek.

It is compulsory that the subjects be passed at not more than two examinations, but there is no restriction on the number of times the candidate may present himself for examination. A degree in Arts or Science in any University of the United Kingdom, and in any Colonial or Foreign University specially recognised, the Lower Grade Leaving Certificate of the Scottish Education Department, and certain other examinations, are accepted as equivalents for the preliminary examination. The preliminary examination conducted by the Educational Institute of Scotland is not accepted as an equivalent examination.

MATRICULATION.—Having passed the preliminary examination, the student must, within fifteen days after the commencement of the session, make the required entries in the Matriculation Album of the University, and pay the matriculation fee, which is one guinea for the whole year, half a guinea for the summer session alone. The student must matriculate each year of study.

REGISTRATION.—Within fifteen days after commencement of study, he must register as a medical student. He must be not less than sixteen years of age, must have passed the preliminary examination, and must produce to the Registrar (James Robertson, Esq., 54 George Square, Edinburgh) an application form duly filled up, showing that he has commenced medical study.

THE CARNEGIE TRUST.—This Trust pays the class fees in the Universities, and in those Extra-Mural classes, attendance at which is recognised as qualifying for graduation. Three qualifications are demanded: the applicant (1) must be over sixteen years of age; (2) must be of Scottish birth or extraction, or must have given two years' attendance after the age of fourteen at a school or institution under inspection of the Scottish Education Department; and (3) must be qualified by preliminary examination under the ordinances of the Scottish Universities Commission and the regulations of the Joint Board

of Examiners, to attend the classes for which payment of fees has been claimed. Schedules of application for admission to the benefit of the Trust are obtainable by written application to the Secretary of the Trust, 14 Hanover Street, Edinburgh.

Professional Education at Edinburgh University

It is more advisable for the student to commence study at the beginning of the summer, than of the winter session. The student who commences in summer should attend the classes in the following sequence:—

First Summer.— Elementary Botany and Zoology.
Examination in these subjects in July.

First Winter.— Chemistry and Practical Chemistry.
Physics (three months' course).
Anatomy Lectures.
Examination in Chemistry, Practical Chemistry and Physics in March.

Second Summer.—Practical Anatomy and Practical Physiology (Histology).

Second Winter.— Physiology (Lectures, Practical Chemical and Practical Experimental Physiology), Practical Anatomy, Surgery.

Third Summer.— Practical Anatomy, Practical Materia Medica, Clinical Surgery and Surgical Ward Work

Third Winter.— Anatomy (Practical and Demonstrations), Materia Medica, Clinical Surgery (three months) and Surgical Ward Work.
Examination in Anatomy and Physiology in March.

Fourth Summer.—Practical Pathology, *Post-Mortem* Examinations, Clinical Medicine and Medical Ward Work.
Examination in Materia Medica in July.

Fourth Winter.— Pathology, Practice of Medicine, Midwifery and Gynæcology, Clinical Medicine and Ward Work.
Examination in Pathology in March.

Fifth Summer.— Forensic Medicine, Public Health, Clinical Medicine, Ophthalmology, Diseases of Children, Mental Diseases, Practical Midwifery.

Fifth Winter and Final Summer.—
Clinical Medicine and Surgery, Hospital, Dispensary, Vaccination, Fevers, Diseases of the Skin, Larynx, Ear and Nose, Operative Surgery (in summer).
Examination in Surgery and Clinical Surgery, Medicine and Clinical Medicine, Midwifery and Gynæcology, Forensic Medicine and Public Health in April, May and June.

If the student commences in winter, the course of study is as follows:—

First Winter.— Physics (three months), Chemistry and Practical Chemistry, Anatomy (Lectures and Practical).
Examination in Chemistry, Practical Chemistry and Physics in March.

First Summer.— Elementary Botany and Zoology.
Examination in these subjects in July.

Second Winter.— Same as above-mentioned second winter.

Second Summer.—Same as above-mentioned third summer, with in addition Practical Physiology (Histology).

and thereafter as in the above-mentioned Winter and Summer Sessions.

The candidate must attend Hospital for not less than three years; must attend both Clinical Medicine and Clinical Surgery for a period of at least nine months; twelve cases of Midwifery, or six cases and three months' attendance at a Maternity Hospital; and *Post-Mortem* Examinations for three months.

Two of the five years of study must be spent at the University, and not less than eight of the compulsory subjects of study must be taken in the University.

The University degrees are now conferred on Women Students. They do not attend the classes in the University, but at the Medical College for Women, Minto House, which is recognised by the University Court as a Medical School whose courses of instruction qualify for graduation in Medicine.

PROFESSIONAL EXAMINATIONS FOR M.B. AND CH.B.

First Examination.— Botany, Zoology, Physics and Chemistry.
Second Examination.—Anatomy, Physiology, Materia Medica and Therapeutics.

Third Examination.— Pathology, Forensic Medicine and Public Health.*

Final Examination.— Medicine and Clinical Medicine, Surgery and Clinical Surgery, Midwifery and Gynæcology, Forensic Medicine and Public Health.*

The candidate may pass in one or more subjects of an examination, even though he fail in the other subjects. The minimum expense for M.B. and Ch.B., including fees for Classes, Hospital, Matriculation and Examinations, amounts to about £143.

Degree of M.D.

Each candidate for this degree, under the new regulations, must be of the age of twenty-four years or upwards, and must have obtained the degrees of M.B. and Ch.B. of the University. He must either have been engaged for two years in general practice, *or* for one year in the naval or military medical services or in the medical wards of a hospital or in scientific research. He must present a thesis written by himself on a medical subject, and pass an examination in Clinical Medicine. In this examination the candidate has to write a report and commentary on at least three cases, and has to show a practical knowledge in the applications of the ophthalmoscope, laryngoscope, electrical apparatus and sphygmograph, in the examination of the blood, and in the chemical and microscopical examination of the excreta.

The candidate who has graduated M.B. and C.M. under the old regulations may either proceed to the degree of M.D. under the old regulations (under which he is not required to pass an examination in Clinical Medicine, but must have passed examinations in Greek and in Logic or Moral Philosophy), or he may proceed to the degree as if he had graduated M.B., Ch.B. under the new regulations.

Degree of Ch.M.

Each candidate must be not less than twenty-four years of age, must possess the degrees of M.B., Ch.B., must have attended the surgical wards of a hospital for one year, or have spent one year in scientific research or in the naval or military medical services, or two years in practice other than that restricted to medicine. He must submit a thesis on a surgical subject, and pass an examination on clinical surgery and its branches, surgical anatomy and operations on the dead body.

*After 1903 Forensic Medicine and Public Health will be only in the Final Examination.

Fees for M.D. and Ch.M.

The fee for the M.D. degree under the old regulations is five guineas; for the M.D. or Ch.M., under the new regulations, ten guineas. The candidate must have paid the matriculation fee for the year in which he presents himself for examination or graduation. At each reappearance for examination, under the new regulations, the fee is five guineas.

DEGREES IN PUBLIC HEALTH

Two degrees are granted by the University of Edinburgh in the department of Sanitary Science, viz., B.Sc. and D.Sc.

Bachelor of Science

Candidates must be graduates in Medicine of a University of the United Kingdom or of some other recognised University. In order to obtain the degree, two examinations have to be passed.

First Examination.—Before entering for this examination, the candidate must, after graduating in Medicine, have worked in a recognised Public Health Laboratory for eight months, of which five consecutive months must be passed in the Public Health Laboratory of the University of Edinburgh.

He must also have attended in a Scottish University a course of lectures on Physics and a course of lectures on Geology, extending over three months, and both of which are approved of by the University Court.

The subjects of examination are as follows:—

(1) *Laboratory* work—Practical, written and oral; examination of water, air, foods, beverages, condiments, sewage; soils; disinfectants; building materials; clothing; bacteriology.
(2) Physics. (3) Geology.

Second Examination.—This cannot be taken until eighteen months after graduating in medicine; nor sooner than six months after passing the First B.Sc. Examination. The candidate must have attended two separate courses in Public Health, either in the University of Edinburgh or in some other recognised University or School.

Each course must consist of forty lectures, and includes Medicine in its relation to Public Health and Sanitary Engineering.

The candidate must likewise produce evidence that (1) for six months he has studied sanitary work under a Medical Officer

of Health for a county or borough of not less than 25,000 inhabitants; (2) that he has studied clinically for three months infectious diseases in a recognised institution; (3) that for three months he has been instructed by a recognised teacher in mensuration and drawing.

The subjects of examination are:—

(1) Sanitation; (2) Sanitary Law; (3) Vital Statistics; (4) Medicine in relation to Public Health.

The candidate is examined orally, practically, and by a written paper. *Sanitation* includes making reports on dwellings, workshops, hospitals, and sanitary schemes.

The University Court may modify the work and instruction prescribed from time to time.

Doctor of Science

A graduate after having held the degree of B.Sc. for five years may present himself for the D.Sc. He must present a thesis, or a published work or memoirs, the result of his own research, and must pass an examination in Public Health, and in such of its special subjects as the Senatus may determine. The candidate must submit the subject in which he proposes to be examined for approval not less than two months before the examination.

Fees Payable.—First and second examinations, £3, 3s. each; for D.Sc., £10, 10s.

Institutions for Clinical Instruction in Edinburgh

Royal Infirmary. 740 beds and 40 cots. Fees—perpetual ticket, £12; one year, £6, 6s.; six months, £4, 4s.; three months, £2, 2s. Clinical instruction is given daily in Medicine, Surgery, and all their special branches.

Royal Hospital for Sick Children. 120 beds.

Royal Maternity and Simpson Memorial Hospital. 40 beds.

City Hospital for Infectious Diseases. Nearly 400 beds.

Royal Asylum, Morningside. 500 beds.

The fee for a qualifying course at each of these last four institutions is £2, 2s.

Victoria Hospital for Consumption and Diseases of the Chest. 23 beds. Out-Patient Department at 26 Lauriston Place.

Eye, Ear, and Throat Infirmary. 6 beds; 2700 Out-Patients yearly.

Royal, New Town, Medical Missionary (Cowgate), Western, Provident (Marshall Street), Eye, and Skin Dispensaries.

Professors and Lecturers in Edinburgh

The courses given by the Extra-Mural Lecturers are recognised by the University and other examining boards as qualifying for graduation.

Botany— Professor I. Balfour, M.D., Botanical Gardens.
J. A. Terras, B.Sc., Teviot Place.
R. S. MacDougall, M.A., D.Sc.

Zoology— Professor J. Cossar Ewart, M.D., University.
A. T. Masterman, D.Sc., Surgeons' Hall.

Biology— A. T. Masterman, D.Sc., Surgeons' Hall.
Marion I. Newbigin, D.Sc., Medical College for Women.

Physics— Professor J. G. MacGregor, D.Sc., University.
Dawson Turner, M.D., Surgeons' Hall.

Chemistry— Professor Crum Brown, M.D., University.
A. P. Aitken, D.Sc., Royal Veterinary College.
J. Falconer King, F.C.S., Minto House.
G. H. Gemmell, F.I.C., 4 Lindsay Place.
James Kerr, B.Sc., Surgeons' Hall.
T. W. Drinkwater, Ph.D., 5 Teviot Place.

Anatomy— Professor Sir William Turner, K.C.B., M.B., University.
J. Ryland Whitaker, B.A., M.B., Surgeons' Hall.
R. J. A. Berry, M.D., New School.

Physiology— Professor E. A. Schäfer, LL.D., University.
D. Noël Paton, M.D., Surgeons' Hall.

Materia Medica and Therapeutics—
Professor Sir Thomas R. Fraser, M.D., University.
William Craig, M.D., Surgeons' Hall.
Lockhart Gillespie, M.D., New School.
William Wood, M.B., Nicholson Square.

Pathology— Professor W. S. Greenfield, M.D., University.
W. Russell, M.D., Medical College for Women.
Theodore Shennan, M.D., Surgeons' Hall.
Stuart M'Donald, M.B., New School.

Surgery— Professor J. Chiene, C.B., M.D., University.
F. M. Caird, F.R.C.S.E., New School.
J. W. B. Hodsdon, F.R.C.S.E., Surgeons' Hall.
H. Alexis Thomson, F.R.C.S.E., Minto House.
David Wallace, C.M.G., F.R.C.S.E., Nicholson Square.
Alex. Miles, F.R.C.S.E., New School.
J. W. Dowden, F.R.C.S.E., Medical College for Women.

Clinical Surgery—
Professor Annandale, F.R.C.S.E., Royal Infirmary.
C. W. Macgillivray, F.R.C.S.E., „
J. M. Cotterill, F.R.C.S.E., „
C. W. Cathcart, F.R.C.S.E., „
F. M. Caird, F.R.C.S.E., „

Practice of Medicine—
Professor J. Wyllie, M.D., University.
Alex. James, M.D., New School.
Byrom Bramwell, M.D., New School.
G. A. Gibson, M.D., Minto House.
R. W. Philip, M.D., New School.
R. A. Fleming, M.D., 27 Nicholson Square.
Graham Brown, M.D., New School.
Alex. Bruce, M.D., Surgeons' Hall.

Clinical Medicine—
The Physicians of the Royal Infirmary.

Midwifery and Gynæcology—
Professor A. R. Simpson, M.D., University.
Sir J. Halliday Croom, M.D., Minto House.
D. Berry Hart, M.D., Surgeons' Hall.
R. Milne Murray, M.D., New School.
J. W. Ballantyne, M.D., Surgeons' Hall.
A. H. F. Barbour, M.D., New School.
F. W. N. Haultain, M.D., New School.
J. Haig Ferguson, M.D., New School.
W. Fordyce, M.D., New School.

Insanity— T. S. Clouston, M.D., University and Royal Asylum.
Sir J. Batty Tuke, M.D., and G. M. Robertson, F.R.C.P.E., Surgeons' Hall and Stirling District Asylum, Larbert.

Diseases of the Eye—
G. A. Berry, M.B., University and Royal Infirmary.
G. Mackay, M.D., Surgeons' Hall and Royal Infirmary.
W. G. Sym, M.D., New School and Eye, Ear, and Throat Infirmary.

Vaccination—J. B. Buist, M.D., Western Dispensary.
Francis Cadell, M.B., Marshall Street Dispensary.

Diseases of Children—
Staff of the Sick Children's Hospital.

Diseases of the Skin—
W. Allan Jamieson, M.D., Royal Infirmary.
Stewart Stirling, M.D., Surgeons' Hall and 35 Lauriston Place.
Norman Walker, M.D., Royal Infirmary.

Diseases of the Ear, Nose, and Throat—
P. M'Bride, M.D., Royal Infirmary.
G. Hunter Mackenzie, M.D., Eye, Ear, and Throat Infirmary.
A. Logan Turner, M.D., Surgeons' Hall.

Forensic Medicine—
Professor Sir Henry D. Littlejohn, M.D., University.
Harvey Littlejohn, F.R.C.S.E., Surgeons' Hall.
W. G. Aitchison Robertson, F.R.C.P.E., New School.

Public Health—
Professor C. Hunter Stewart, M.B., University.
W. G. Aitchison Robertson, F.R.C.P.E., New School.
C. J. Lewis, M.D., Minto House.

Fevers— J. O. Affleck, M.D., City Hospital.
C. B. Ker, M.D., Surgeons' Hall.

Bacteriology—J. M. Beattie, M.D., University.
T. Shennan, M.D., Surgeons' Hall.
J. Taylor Grant, M.D., 4 Lindsay Place.
Stuart M'Donald, M.B., New School.

Tropical Diseases—
A. Davidson, M.D., University.

Practical Gynæcology—
N. T. Brewis, M.D., 5 Cambridge Street.
J. Haig Ferguson, M.D., Leith Hospital.

Diseases of the Blood—
G. Lovell Gulland, M.D., Surgeons' Hall.

Glasgow University

The medical curriculum at the University extends over five years, and the classes are held in the handsome buildings at Gilmorehill, adjacent to which lies the Western Infirmary, where there is an excellent field for clinical and practical work.

The Faculty of Medicine embraces the classes of Botany, Zoology, Physics, Chemistry, Anatomy, Embryology, Physi-

ology, Materia Medica and Therapeutics, Pathology, Medical Jurisprudence and Public Health, Surgery, Clinical Surgery, Practice of Medicine, Clinical Medicine, Midwifery, Insanity, Diseases of the Eye, Diseases of the Ear, Diseases of the Throat and Nose, Diseases of the Skin, and Diseases of Children.

The cost of the medical curriculum is about £126.

Before the commencement of medical and surgical studies the preliminary examination has to be passed. The names of candidates for this examination must be given in and the fee of 10s. 6d. paid to the assistant clerk at the Matriculation Office. At the Matriculation Office successful students can obtain the registration forms which must be filled up and sent to 48 George Square, Edinburgh.

The University of Glasgow offers many attractions to students. The professional chairs are occupied by able men, some of them of world-wide renown; and in the Western Infirmary with the recent additions to its surgical theatres, and its excellent pathological laboratories and museum, a splendid field of observation is open to the student. There are also extremely good opportunities for practical work in the various dispensaries of the city, in the Maternity Hospital with its large out-door department, and also at the Royal Hospital for Sick Children, the Eye Infirmary, and the Royal Asylum of Gartnavel.

The Students' Union, situated in the University grounds, is very convenient, and much taken advantage of.

Lodgings are to be found all round the neighbourhood, so that the whole life of the student, his work and his recreation, is drawn into a small circle, within which he can move as busily and as profitably to himself as in any teaching school in the kingdom.

A students' magazine is usually issued weekly during the session, and has a successful circulation amongst all the students at Gilmorehill. For medical students there is a Medico-Chirurgical Society for debating purposes.

Queen Margaret College for Women

In February 1892 the Universities Commission issued an ordinance empowering the Scottish University Courts to make provision, within the Universities, for instruction of women. The Council of Queen Margaret College, in consideration of this provision, made over their work to the University. The "Queen Margaret College" survives now as the part of the University which is devoted to the education of women.

A full course of medicine and surgery is obtainable. The regulations, fees, etc., are similar to those for men. The build-

ings are pleasantly situated in grounds of their own, close to the Botanic Gardens. The newly-built anatomical department is excellently arranged and most complete. Clinical work is amply provided for in the Royal Infirmary and its Dispensaries, and in the Royal Hospital for Sick Children, the Glasgow Maternity Hospital, the Royal Asylum of Gartnavel, and the Belvidere Fever Hospital. There are also arrangements for special study and research.

Students can have board and lodging at Queen Margaret Hall, within easy reach of the College, at the rate of about one guinea per week for each week of the session. The school is flourishing and largely attended. There is a winter session commencing in October and a summer session in April.

All information necessary can be obtained from Miss Galloway, Queen Margaret College, Glasgow.

St Mungo's College Medical School, Glasgow

St Mungo's College was the outcome of the Royal Infirmary Medical School which was opened in 1876. The venerable Infirmary has now actively existed for one hundred and five years, and the students of St Mungo have peculiarly good opportunities for practical and clinical work in the wards and dispensaries. To the Royal Infirmary a large number of accidents are admitted, and numerous medical cases of all kinds; and for students, and more especially for house-surgeons and house-physicians, the practical experience is abundant. St Mungo's College buildings are attached to the Dispensary and adjacent to the Infirmary. The winter session opens in October, and there is always a summer session from April to July. All information regarding classes, fees, etc., can be obtained from the Dean, St Mungo's College, 86 Castle Street. The classes are for male students only. The class-rooms and laboratories have accommodation for 300 or 400 students. The anatomical department consists of large, well-lighted dissecting rooms, a lecture-room, and osteology gallery and museum. There are also chemical, physiological, zoological, and botanical laboratories. In the adjacent dispensaries fully 40,000 patients are seen yearly. Students can also have access to the well-equipped Pathological Museum and Laboratory of the Infirmary and the bacteriological department.

The electrical department of the hospital is one of the best in the country.

The bursaries are few in number, but the class fees are moderate, averaging two guineas for a winter course, while the

combined theoretical and practical courses of anatomy, zoology, physiology and pathology are four guineas each.

A Public Health Laboratory is also open to students for a complete course in practical work, and there are two lectureships on this subject, so that those who desire may conform to the new regulations of the Medical Council and the requirements of the examining boards. Excellent instruction in fevers can be obtained at the Belvidere Hospital. Dressers and clerks are chosen from the students for work in the wards of the Infirmary.

Anderson's College Medical School

Dumbarton Road, Partick, Glasgow

The old institution known as "Anderson's University" was founded by John Anderson, M.A., F.R.S., in 1726, and the medical school connected therewith dates back to the year 1800.

In 1877 the name of the Institution was altered from "Anderson's University" to "Anderson's College." In 1887 the medical school of Anderson's College became a distinct Institution known as "Anderson's College Medical School."

The new buildings are situated in Dumbarton Road, immediately to the west of the entrance of the Western Infirmary, and four minutes' walk of the University. They are constructed on the best modern principles, and are provided with all the appliances requisite for the conduct and management of a fully-equipped medical school.

Lectures are delivered in all the subjects of the five years' curriculum :—

Anatomy—Professor A. M. Buchanan, M.A., M.D.
Chemistry—Professor J. Robertson Watson, M.A.
Physics—Professor Peter Bennett.
Zoology—Professor Geo. Bell Todd, M.B.
Botany—Professor B. G. Cormack, M.A., B.Sc.
Physiology—Professor Robert Fullarton, M.A., M.B.
Surgery—Professor J. H. Nicoll, M.B.
Pathology—At the Western or Royal Infirmary.
Practice of Medicine—Professor R. S. Thomson, M.D., D.Sc, F.R.S.E.
Materia Medica—Professor R. Barclay Ness, M.A., M.B.
Midwifery—Professor John Edgar, M.A., B.Sc., M.B.
Medical Jurisprudence and Hygiene—Professor Carstairs Douglas, B.Sc., M.D., F.R.S.E.

Ophthalmic Medicine and Surgery—T. Spence Meighan, M.B.
Aural Surgery—James Galbraith Connal, M.B.
Diseases of Throat and Nose—John Macintyre, M.B., F.R.S.E.
Mental Diseases—John Carswell, F.F.P.S.G.

Degrees and diplomas: Certificates of attendance on the lectures at Anderson's College Medical School are received by the Universities of London and Durham, by the Royal University of Ireland, and by all the Royal Colleges and Licensing Boards in the United Kingdom. They are also recognised by the Universities of Glasgow and Edinburgh under certain conditions which are stated in the calendar of this school.

Candidates for the licence in dental surgery can obtain at this school the full medical curriculum which is required. The courses special to dentistry are conducted at the Glasgow Dental School, 5 St Vincent Street.

Malcolm Kerr Bursary in anatomy. Value £10. Open to students of the junior anatomy class during session 1901-1902.

Class fees.—For each course of lectures (anatomy, ophthalmic medicine and surgery, aural surgery, diseases of throat and nose and mental diseases excepted): first session, £2, 2s.; second session (in Anderson's College), £1, 1s,; afterwards free. For practical classes (except anatomy), viz., chemistry, botany, zoology, physiology, pharmacy, operative surgery): first session, £2, 2s.; second session, £2, 2s.

Reduced joint fees in zoology and in botany, for lectures and practical class when taken in same summer session, £3, 3s.; for either course separately, £2, 2s.

Anatomy class fees: Winter, first session (including practical anatomy), £4, 4s.; second session (including practical anatomy), £4, 4s.; third session, £2, 2s. To those who have had the necessary courses of practical anatomy, the fee will be £1, 1s.

Summer—Lectures and practical anatomy, £2, 12s. 6d; lectures alone, £1, 11s. 6d.; practical anatomy alone, £1, 1s.; osteology and practical anatomy, £2, 12s. 6d.; osteology alone, £1, 11s. 6d.

Ophthalmic medicine and surgery (including hospital practice) —Aural surgery, diseases of throat and nose, and mental diseases, £1, 1s.

Matriculation fee—10s. to those taking out two or more classes; 5s. to those taking out one class only. The matriculation fee of 10s. represents a combined fee for the winter and summer sessions.

Western or Royal Infirmary.—Fees: Hospital practice and clinical instruction: first year, £10, 10s.; second year, £10, 10s., afterwards free. Six months, £7, 7s. at Western Infirmary;

£6, 6s. at Royal Infirmary; three months, £4, 4s. Vaccination fee, £1, 1s. Attendance at the dispensaries of the Western and Royal Infirmaries is included in the hospital fees.

A calendar may be obtained from the secretary, Dr R. Barclay Ness, Anderson's College Medical School, Dumbarton Road, Partick, Glasgow.

Aberdeen University

The course of study for the degree of M.B., Ch.B., extends over five years, of which two at least must be spent in the University of Aberdeen.

The curriculum is the same as in the other Scottish Universities as far as relates to attendance on University classes, to clinical study at a General Hospital, to attendance on courses of Clinical Surgery, Clinical Medicine, Mental Diseases, and Practical Pharmacy, to instruction in Vaccination, to attendance on Cases of Labour, and to the practice of a Dispensary.

The candidate must also, before admission to the final examination, produce the following certificates:—

(1) That he has acted as clerk in the Medical and Dresser in the Surgical Wards of a Public Hospital, each for a period equivalent to one Winter Session.

(2) That he has been present at not fewer than twenty-five *post-mortem* examinations at a Hospital or Dispensary, some of which he must have taken part in performing.

(3) That he has attended for at least three months the practice of a General Fever Hospital with not fewer than forty beds.

(4) That he has attended for at least three months a course of clinical instruction in the Diseases of Children.

(5) That he has attended for at least three months the Ophthalmological practice of a Hospital or Dispensary, where special provision is made for giving instruction.

Certificates for these various classes and courses must attest not only regular attendance, but also due performance of the work.

There is no prescribed order of study, but a scheme, representing the minimum curriculum, has been drawn up for the guidance of students, and is printed in the Calendar.

The following are the Classes in the Medical Faculty:—

WINTER SESSION

Zoology—Professor John Arthur Thomson, M.A.
Chemistry—Professor Japp, M.A., LL.D., F.R.S.
Anatomy—Professor Reid, M.D., F.R.C.S.

Practical Anatomy—Professor Reid and Assistants.
Physiology (*Syst. and Pract.*)—Professor MacWilliam, M.D.
Materia Medica—Professor Cash, M.D., F.R.S.
Pathology (*Syst. and Pract.*)—Professor Hamilton, M.B., F.R.C.S.E., F.R.S.E.
Surgery—Professor Ogston, C.M., M.D.
Medicine—Professor Finlay, B.A., M.D., F.R.C.P.
Midwifery and Diseases of Women and Children—Professor Stephenson, M.D., F.R.C.S.E.

SUMMER SESSION

Botany—Professor Trail, M.A., M.D., F.L.S., F.R.S.
Practical Botany—Professor Trail.
Zoology—Professor Thomson.
Practical Zoology—Professor Thomson.
Physics—Professor Niven, M.A., D.Sc., F.R.S.
Practical Chemistry—Professor Japp and Assistants.
Practical Anatomy—Professor Reid and Assistants.
Practical Materia Medica and Pharmacy—Professor Cash and Assistant.
Physiology (*Syst. and Pract.*)—Professor MacWilliam.
Forensic Medicine—Professor Hay, M.D.
Practical Hygiene and Forensic Medicine—Professor Hay.
Pathology (*Syst. and Pract.*)—Professor Hamilton.
Practical Midwifery and Gynecology and Clinical Diseases of Children.—Professor Stephenson.
Tropical Medicine—Dr G. A. Maconachie, Lecturer.

Systematic and Practical Pathology, and Systematic and Practical Physiology respectively are now taught as parts of one continuous course, occupying a whole academic year, *i.e.* a summer and a winter session.

There are Assistants to the Professors in the Medical Faculty appointed annually, two in the departments of Anatomy and Chemistry, and one in each of the other departments.

The following are recognised as Lecturers:—

Lecturer on	Mental Diseases . .	Wm. Reid, M.D.
„	Ophthalmology . .	C. H. Usher, M.B., B.C., F.R.C.S.E.
„	Vaccination . .	R. G. M'Kerron, M.A., M.D.
„	Skin Diseases . .	J. F. Christie, M.A., M.B., C.M.
„	Diseases of Ear, Throat, and Nose . .	J. Mackenzie Booth, M.D., C.M.
„	Ophthalmology . .	A. Rudolph Galloway, M.A., M.B., C.M.

All the University Classes are held at Marischal College.

Tutorial Classes are held in connection with most of the Systematic Courses, and practical instruction is given in the fully-equipped Laboratories connected with the several departments.

Graduates or others desirous of engaging in special study or research may be allowed by the Senatus to work in any of the Laboratories. Such Research Students are exempted from payment of Laboratory Fees (*v. infra*), but must matriculate each year, paying the ordinary Matriculation Fee.

Fees for Ordinary Laboratory Course—

For six hours a week (winter session) .	£3	3	0
Each additional hour („ „) .	0	10	6
For nine hours a week (summer „) .	3	3	0
Each additional hour	0	7	0
Or, For one month (all day) . .	4	4	0
„ two months („) . .	7	7	0
„ three „ („) . .	10	10	0

The Matriculation Fee must be paid in addition.

General clinical instruction is obtained in the following Medical Institutions:—

The Royal Infirmary of Aberdeen

This General Hospital, situated about seven minutes' walk from Marischal College, has been recently constructed on the most modern principles, and is fully equipped with all the requirements for medical work and teaching. It accommodates upwards of two hundred patients; the number of patients admitted during the year 1901 was 2606, and the number of out-patients treated during the same period was 9333.

Four resident medical officers are appointed annually, two in May and two in August, from those who have completed their medical course, to hold office for twelve months. Salary, £25 with board.

Fees.—Perpetual fee to hospital practice, £6, or first year, £3, 10s., second year, £3, afterwards free; clerkship in medicine, £1, 1s.; dressership in surgery, £1, 1s.; pathological demonstrations, £1, 1s. (Special courses of lectures are charged for.)

Royal Hospital for Sick Children

It is situated about five minutes' walk from Marischal College.

It accommodates over 80 patients, having recently undergone extension. The number of patients admitted in 1901 was

712, and the number of out-patients treated, 1096. No infectious disease except diphtheria is treated.

Each student must act as clerk for six weeks in the medical and surgical wards respectively.

There is one qualified house physician and surgeon (resident) who holds office for six months. Salary at the rate of £25 per annum.

Fee for hospital practice, £2, 2s. first year; subsequent years, £1, 1s.

Royal Asylum

It is situated about fifteen minutes' walk from Marischal College. It accommodates over 800 patients, and has been recently fitted up with a fully equipped hospital and a laboratory.

The senior physician is recognised by the University as lecturer on mental diseases, and delivers a qualifying course of lectures.

The City (Fever) Hospital

It is situated about ten minutes' walk from Marischal College, and accommodates 100 patients.

Senior students are admitted for instruction in fevers twice a week under the visiting physician (who is the Medical Officer of Health for the City) and his assistant. Fee, £1, 1s.

There is one qualified resident house physician, appointed annually. Salary, £50 and board.

General Dispensary, Maternity Hospital, and Vaccine Institution

It is situated about two minutes' walk from Marischal College.

The total number of cases treated during 1901 was 11,810, and the number of patients treated at their own homes, 2339. There were 316 midwifery cases.

Fees.—Perpetual fee, £3, 3s.; vaccination certificate and instruction, £1, 1s.; for special courses, *v. supra.*

Ophthalmic Institution

This institution is situated about three minutes' walk from Marischal College. The surgeon in charge is recognised by the University as a lecturer on ophthalmology.

During 1900, 50 in-patients and 3389 out-patients were treated.

PROFESSIONAL EXAMINATIONS

I. Degrees of M.B., Ch.B.

There are four examinations: the subjects and regulations of these are common to all the Scottish Universities.

II. Degree of M.D.

The regulations are common to all the Scottish Universities.

The candidates must be M.B., Ch.B. of Aberdeen University, and twenty-four years of age or upwards.

He must submit a thesis composed by himself, and pass an examination in clinical medicine.

The following are special regulations with regard to the clinical examination :—

The examination is both written and oral, and consists of the following divisions :—

Part I. (*a*) A written report on one or more clinical cases examined by the candidate.

(*b*) An oral and practical examination at the bedside. Candidates must be able to use the laryngoscope and ophthalmoscope, so far as they are required in medical cases.

Part II. The candidates must show a high proficiency in a special department selected by himself, *e.g.* Obstetrics, Mental Diseases, Zymotic Diseases, or other departments approved by the Senatus.

Part III. A commentary in writing on a case or cases, a statement of the particulars of which will be submitted to the candidate.

(For dates of submission of thesis, payment of fees, etc., *v.* degree of C.M.)

III. Degree of C.M.

The regulations are common to all the Scottish Universities.

The candidate must be M.B., Ch.B. of Aberdeen University, and twenty-four years of age or upwards.

He must submit a thesis composed by himself, and pass an examination, of which the following are the special regulations :—

The examination is written, oral, and practical, and consists of the following divisions :—

Part I. (*a*) A written report on one or more clinical cases examined by the candidate.

(*b*) An oral and practical examination on cases. Candidates must be familiar with the use of instruments required in investigating diseases of the eye, ear, and throat.

Part II. An examination in surgical anatomy and operations on the cadaver.

Each candidate for the degree of C.M. or M.D. must lodge his thesis (accompanied by a signed declaration that the work has been done and the thesis composed by himself) with the

Dean of the Faculty of Medicine not later than 1st February for the spring graduation, or 1st June for the summer graduation. He shall at the same time intimate the special department of clinical examination (M.D.) for which he wishes to enter, and pay the necessary fee.

The fee for the degree of M.D. or C.M. is £10, 10s. (exclusive of any stamp duty); re-examination fee is £2, 2s.

IV. Diploma in Public Health (D.P.H.)

The diploma is conferred, after special instruction and examination, on anyone who has been at least twelve months a graduate in medicine of a university in the United Kingdom: if not a graduate of Aberdeen University, the candidate must attend a course of instruction in this University in one or more subjects embraced in the examination for the diploma.

Each candidate must have attended a course of instruction in Public Health.

The qualifying post-graduate instruction embraces:—

(α) Regular attendance, for three months, at a hospital for infectious diseases, at which opportunities are afforded for the study of methods of administration.

(β) Daily association for a period of six months (of which at least three months must be distinct from the period of laboratory instruction) in the duty, routine and special, of Public Health Administration, under the supervision of a recognised Medical Officer of Health.

(γ) Practical instruction, for at least six months, in laboratory work, which includes examination of water, air, soil and foods, and the study of bacteriology, disinfection, ventilation, water supply and sewerage, and the framing of reports of analysis. The laboratory attendance must extend over at least fifteen hours a week.

The qualifying courses of laboratory instruction in Aberdeen University are given in the Public Health Laboratory (Fee, £6, 6s.), and the Bacteriological Laboratory (Fee, £3, 3s.).

The Diploma is conferred after an examination in March and July of each year.

The examination is written, oral, and practical, and is divided into two parts.

Part I. embraces the following subjects in their application to Public Health.

(α) Physics, Engineering, and Meteorology.

(β) Chemistry, Microscopy, and Bacteriology.

Part II. embraces:—

(α) General Hygiene.

(β) Sanitary Law and Vital Statistics.

Part I. may be taken alone, or both parts together.

The written examinations occupy two days, and the oral and laboratory and outdoor examination three to four days.

Candidates must send in their names and pay the fees a fortnight before the examination. Examination fee is five guineas. Re-examination fee one guinea.

SUMMARY OF FEES

I. University Fees

(*a*) Preliminary Examination (each occasion) .			£0	10 6
(*β*) Matriculation—For whole year . .			1	1 0
For Summer Session .			0	10 6
(*γ*) Class Fees.—Each Systematic Course—First attendance .			3	3 0
„ —Each subsequent attendance .			2	2 0
Each Practical and Operative Course . . .			3	3 0
Except { Practical Botany .			2	2 0
and Practical Zoology .			2	2 0
(*δ*) Degree Fees—For M.B., Ch.B.—				
1st Professional Exam.	£5 5 0			
2nd „ „	5 5 0			
3rd „ „	5 5 0			
4th „ „	7 7 0			
		£23	2	0
Re-examination fee for not more than two subjects			1	1 0
„ for each additional subject .			0	10 6
For M.D.			10	10 0
For Ch.M.			10	10 0
Re-examination Fee			2	2 0

II. Non-University Fees

Royal Infirmary—Perpetual Fee . .	£6	0	0
Children's Hospital	2	2	0
Dispensary—Perpetual Fee . . .	3	3	0
City (Fever) Hospital	1	1	0
Lectures on clinical medicine—Winter Session.	3	3	0
Summer „ .	2	2	0
„ clinical surgery— Winter Session.	3	3	0
Summer „ .	2	2	0
Clerkship at Royal Infirmary . . .	1	1	0
Dressership „ „ . . .	1	1	0

Course of Lectures on Mental Diseases .	.	£2 2 0
Course of lectures on Tropical Medicine	Each £1, 1s.	
Course of lectures on Diseases of eye	Each £1, 1s.	
Course of lectures on „ ear, throat and nose	Each £1, 1s.	
Course of lectures on „ skin	Each £1, 1s.	
Instruction in Vaccination	Each £1, 1s.	
Instruction in Medical electricity	Each £1, 1s.	
Instruction in *Post-mortem* room	Each £1, 1s.	

The cost of matriculation, class, and hospital fees for the whole curriculum, exclusive of fees for degrees, is usually about £100.

University of St Andrews

The medical degrees are the same as those of the other Scottish universities, and they are granted under similar conditions. The graduation fees for the degree of M.B., Ch.B. amount to twenty-two guineas, and for M.D. or Ch.M. ten guineas.

United College, St Andrews, affords considerable facilities to students beginning a medical course, especially if they are willing to combine it with a preliminary two years of study for an Arts or Science degree. Under the new regulations, which make it possible to study botany, zoology, chemistry and physics as part of the course for an M.A. degree, the medical student can, during the early years of his medical course, hold some of the many bursaries or scholarships which the University of St Andrews has to offer. For women the large number of Taylour Thomson bursaries (several are at present vacant), to which female medical students have a preference, makes the course in St Andrews specially advantageous. There are several £20 bursaries for men. The cost of rooms and living is considerably under that in the larger towns. For women there is an excellent residential hall, and other students may attend the common dinners in the Union. The medical course in St Andrews extends over two years, and embraces all the subjects of the first two professional examinations. The other subjects must be studied elsewhere, but the student may take all the examinations in the University and graduate there. There are special buildings for the Medical School.

University College, Dundee, is now able to offer the student the option of completing his course in Dundee and graduating in the University if he so choose. There are at present several bursaries which may be held by medical students. The chief attraction of the school in Dundee is its abundance of oppor-

tunities for clinical work. With the completion of the Caird Wards the Royal Infirmary has fully 300 beds, including special wards for obstetrics, gynecology, children, and ophthalmology, and in addition there are an epidemic hospital and a large asylum, and an hospital for incurable diseases has been opened. There are four largely-attended dispensary districts. In addition to the College and class libraries, the students have the use of the Dundee Medical Library, a collection of 3000 volumes, which is being steadily added to. The small number of students at present in the school enables each to secure much more individual tuition, and a very much larger amount of clinical work and experience than is possible in the larger schools.

The classes at the United College, St Andrews, are:— Natural philosophy; practical physics; chemistry; practical chemistry; natural history; practical zoology (when taken along with the ordinary classes the fee for each of these three practical classes is £1, 1s.); botany; practical botany; physiology; anatomy; practical anatomy; materia medica; practical materia medica.

At University College, Dundee, full courses in medicine and in public health are now given.

ST ANDREWS

PROFESSORS AND LECTURERS

Physics— Professor Butler.
Chemistry— Professor Purdie.
Zoology— Professor Mackintosh.
Botany Lecturer—
Mr R. A. Robertson.
Physiology—Dr Harris.
Anatomy Lecturer—
Professor Musgrove.
Materia Medica—
Professor Marshall.

DUNDEE

PROFESSORS AND LECTURERS

Physics— Professor Kuenen.
Chemistry— Professor Walker.
Zoology— Professor D'Arcy Thompson, C.B.
Botany— Professor Geddes.
Physiology—Professor Waymouth Reid.
Anatomy— Principal Yule Mackay.
Surgery, Systematic and Operative—
Professor MacEwan.

Surgery, Clinical—
Professor MacEwan.
Mr D. M. Greig.
Medicine, Systematic—
Professor Stalker.
Medicine, Clinical—
Professor Stalker.
Dr Mackie Whyte.
Materia Medica—
Professor Marshall.
Pathology— Professor Sutherland.
Midwifery and Diseases of Women—
Professor Kynoch.
Midwifery and Diseases of Women, Clinical—
Professor Kynoch.
Dr R. C. Buist.
Forensic Medicine—
C. Templeman, M.D., D.Sc., M.O.H.
Ophthalmology—
A. M'Gillivray, M.D.
Mental Diseases—
J. Rorie, M.D.
Diseases of Ear and Throat—
G. T. Guild, M.B.
Vaccination—
R. C. Buist, M.D.

Qualifications given by the Scottish Colleges

The Royal College of Physicians of Edinburgh, The Royal College of Surgeons of Edinburgh, and The Faculty of Physicians and Surgeons of Glasgow, conjointly confer the Triple Qualification (L.R.C.P.E., L.R.C.S.E., L.F.P.S.G.). Female candidates are admitted to the examinations for this qualification, the Regulations being the same for candidates of either sex.

PRELIMINARY EXAMINATION.—This examination must be passed before the Student commences professional study. It may be passed before any of the Boards recognised by the General Medical Council, and enumerated in the Regulations of the Colleges. The Educational Institute of Scotland conducts a qualifying Preliminary examination for medical students, in Edinburgh and Glasgow, on behalf of the Colleges. This examination embraces English, Latin, Mathematics, and either Greek, French, German, or other modern language. All the subjects must be passed at one time. Further particulars are

obtainable from Alexander Mackay, Esq., LL.D., 40 Princes Street, Edinburgh.

REGISTRATION.—This is essential; the Regulations have been already given on p. 319.

PROFESSIONAL EDUCATION. — The curriculum must extend over five years. Graduates in Arts or Science of any recognised University who have spent a year in the study of Physics, Chemistry, and Biology, and have passed an examination in these subjects for the degrees in question, are exempted from the first year of study. The fifth year of study should be devoted to clinical work in one or more recognised Hospitals or Dispensaries, and to the study of special diseases; but the student may pass six months of the fifth year as a pupil to a registered practitioner deemed capable by the committee of management.

ORDER OF STUDY WHICH IS RECOMMENDED

First Summer.— Physics and Elementary Biology.

First Winter.— Six months' course in Chemistry and Anatomy; three months' course in Practical Chemistry; Practical Anatomy.

Second Summer.—Practical Anatomy; Histology.

Second Winter.— Practical Anatomy; Physiology—Six months' course.

Third Summer.— Three months' course in Pathology, Materia Medica, and Practical Materia Medica; Surgical Hospital Practice.

Third Winter.— Six months' course in Surgery and Clinical Surgery; Attendance at Surgical Wards.

Fourth Summer.—Three months' course in Midwifery and Gynæcology, in Medical Jurisprudence and Public Health, and in Clinical Surgery; Hospital Practice.

Fourth Winter.— Six months' course in Medicine and Clinical Medicine; Hospital Practice.

Fifth Summer.— Three months at Clinical Medicine; Hospital; Insanity; Diseases of Children; Diseases of Eye.

Practical Midwifery—Personal attendance on twelve cases under the supervision of a medical practitioner, *or* three months' attendance at a Lying-in Hospital and personal attendance on six cases.

Fifth Winter.— Hospital Practice; Fevers; Dispensary; Vaccination; Skin Diseases; Ear and Throat Diseases.

PROFESSIONAL EXAMINATIONS.—Four of these are held during the curriculum. Each is held quarterly in Edinburgh and twice a year in Glasgow. Candidates may go up for all the subjects of the first Professional examination at once, or may enter for and pass in any division of subjects. A higher percentage of marks is required, however, from candidates entering for such divisions. Candidates are advised to enter for the entire examination; they must enter for *all* the subjects of the second, third, and final examinations.

First Examination.— Physics, Chemistry, and Elementary Biology. This should be passed before the beginning of the second winter session.

Second Examination.—Anatomy, Physiology, including Histology. This should be passed at the end of the second year of study.

Third Examination.—Pathology, Materia Medica, and Pharmacy. This should be taken at the end of the third year.

Final Examination.— Can only be taken at the end of the fifth year. The candidate must have attained the age of twenty-one.

It includes:—

1. Medicine, Therapeutics, Medical Anatomy, Clinical Medicine.
2. Surgery, Surgical Anatomy, Clinical Surgery, Diseases of the Eye.
3. Midwifery and Diseases of Women and New-born Children.
4. Medical Jurisprudence, and Public Health.

FEES FOR PROFESSIONAL EXAMINATIONS

For each of the first three, £5; for the final, £15. The minimum total expense, inclusive of fees for classes and examinations, amounts to £115.

DIPLOMA IN PUBLIC HEALTH OF THE ROYAL COLLEGES

The Diploma is granted by the Triple Qualification Board.

1. Every candidate for examination must have held a registrable medical qualification for one year.

2. After obtaining such qualification, he must have attended during six months a recognised Laboratory in which Chemistry, Bacteriology, and the Pathology of the Diseases of Animals transmissible to man are taught; and the certificate must show that the candidate has conducted analyses of air, water, sewage, and foods.

3. After obtaining a medical qualification he must during six months have been associated in the duty of Public Health Administration under the supervision of—

(*a*) In England or Wales, the Medical Officer of Health of a county or district having a population of not less than 50,000; or

(*b*) In Scotland or Ireland the Medical Officer of Health of a county or district with a population of not less than 30,000; or

(*c*) A Medical Officer of Health who is also a teacher in the Department of Public Health in a recognised medical school.

If the candidate have been a Medical Officer of Health he is exempted from this regulation.

4. After obtaining a medical qualification he must have attended for three months the practice of a Hospital for Infectious Diseases.

There are *Two Examinations.* The first includes—(*a*) Laboratory work, with Chemistry and Bacteriology; (*b*) Physics; (*c*) Meteorology.

The Second Examination embraces—(*a*) Report on premises visited; (*b*) Examination at Fever Hospital; (*c*) Examination at Public Abattoir; (*d*) Epidemiology and Endemiology; (*e*) Vital Statistics and Sanitary Law; (*f*) Practical Sanitation.

Each examination is held bi-annually, in October and May. The fee for each is £6, 6s.; for re-examination, £3, 3s. Fees and applications to be lodged with JAMES ROBERTSON, Esq., 54 George Square, Edinburgh; or with ALEX. DUNCAN, Esq., LL.D., 242 St Vincent Street, Glasgow.

MEMBERSHIP AND FELLOWSHIP OF THE ROYAL COLLEGE OF PHYSICIANS, EDINBURGH

Every applicant for the *Membership* must possess a recognised qualification, and be not less than twenty-four years of age. He must pass an examination on Medicine and Therapeutics, on Clinical Medicine, and on some special Department of Medicine, such as Psychological Medicine, Pathology, Medical Jurisprudence, Public Health, Midwifery, Gynæcology, or Neuro-

logy. Having passed this examination the Membership is conferred by election.

The fee for the Membership is thirty-five guineas, except the applicant be a Licentiate of the College, when it is twenty-five guineas.

Members of not less than three years' standing may be raised by election to the *Fellowship*, the fee being thirty-eight guineas, exclusive of Stamp Duty of £25.

FELLOWSHIP OF THE ROYAL COLLEGE OF SURGEONS, EDINBURGH

Every candidate must be twenty-five years of age, and must have been engaged for two years in the practice of his profession after having obtained a recognised qualification in Surgery. The petition for examination must be signed by two Fellows—a proposer and seconder.

The candidate must pass an examination on Surgery, Surgical Anatomy, Operative and Clinical Surgery, and one optional subject, for example, Ophthalmology, Aural and Laryngeal Surgery, Cerebro-Spinal, Abdominal, Gynæcological, Orthopædic, Dental, Venereal, and Genito-Urinary Surgery, Advanced Anatomy or Physiology, Surgical Pathology and Morbid Anatomy, Midwifery, Medical Jurisprudence and Public Health.

The fees amount to £45. If the candidate be a Licentiate of the College the fee is £30.

Medical Education of Women in Edinburgh

MEDICAL COLLEGE FOR WOMEN, MINTO HOUSE

This College is recognised by the University Court and the Triple Qualification Board as a Medical School, whose courses of instruction qualify for graduation in Medicine. The curriculum and class fees are the same as for male students, proceeding to the University Degree or College Qualification respectively. Clinical tuition is provided in the Royal Infirmary.

The prospectus of the College, and any information regarding the medical education of women in Edinburgh, may be obtained from Miss MACKAY, Secretary, Medical College for Women, Minto House, Edinburgh, who will be glad to furnish lists of lodgings to intending students.

Editorial Notes and News

The Curriculum. WE have elsewhere intimated that we are not to be taken as agreeing with all the views of our contributor on the reconstruction of the Curriculum, but undoubtedly improvements are urgently required. It is always difficult to convince authorities in advanced middle age that the curriculum, which served so admirably in their young days, may now be in need of reorganisation; but this holds not in Medicine only. The paper which Professor Musser has been good enough to write at our request, will probably be a revelation to some who have been in the habit of regarding American Medical Education with, shall we say, kindly pity.

The apparent year less demanded in America is much more apparent than real, for their whole four years are devoted to Medicine proper. If all our students were to pass the first professional examination at the proper time, they too would have four clear years for Medicine. But it is notorious that they do not, and that many of them are occupied for two years with the preliminary scientific subjects, and thus have only three for the study of Medicine proper.

We have not heard that Professor Schäfer has yet been able to convince his colleagues of the desirability of altering the position of Surgery on the curriculum, but it will be noticed in our article on Medical Education that the curriculum recommended by the Royal Colleges places Surgery in the third winter and not in the second. Unfortunately, "or fortunately," most of the students are bound by the University regulations; and until the University moves, we fear that they will continue to take Surgery in their second year.

The Proposed Three Terms. THE three-term *annus medicus* has evoked little enthusiasm in the West. It has been discussed, but so far, at all events, there seems little likelihood of discussion ripening into action, and it is not regarded with special favour from the professorial standpoint.

Public Health in Glasgow. THERE is some prospect that as soon as the Local Government Board is satisfied that the Public Health Department in Glasgow has been placed on a satisfactory footing, it will grant the application of the city to be constituted Port Sanitary Authority for the supervision of all disease-stricken vessels entering its harbour.

Greenock is at present, by Act of Parliament, the Local Authority for the administration of the Public Health Act with reference to ships. It can recover expenses from Glasgow, Renfrew, Dumbarton and other burghs, for outlay incurred in dealing with cases of infectious disease on board ships arriving at the Tail of the Bank.

The International Congress.

THOSE who are under the impression that the Spaniards are a lazy race, should study the programme of the International Medical Congress to be held in Madrid next spring. In the week from April 23rd to 30th, the amount of work which is already planned is sufficient to fully employ the time of any ordinary congress; and when one reflects that this is only the *preliminary* programme, the prospect of the complete one is somewhat appalling.

In the section of Syphilis and Dermatology there are no fewer than twenty-six subjects singled out for "more special" treatment; and if the other sections are not yet so full, they have quite a while to emulate this example of industry before the final programme is issued. But probably, when the time comes, the work of the congressants will not be quite so hard as it looks, and the romantic interest of Spain will doubtless attract many.

It seems unfortunate that the official representatives of "Grande Bretagne et Irlande" should all be resident in London.

"Para"-Diseases.

DR GULLAND will pardon us if we use his summary as the text for a very short sermon on the use of the word. It has of late become fashionable. There are para-tuberclides, para-syphilides, para-typhoids, and the latest we have heard of is to be the subject of discussion at Madrid, viz., para-gonorrhœa. We have seen many gonorrhœas which the patient was most anxious to convince us were of the para nature, but being of a sceptical turn of mind, we have never yet been convinced. Seriously, would it not be well to reconsider the prefix? Most of the diseases to which the term has, so far as we are aware, been applied, are diseases more or less certainly due to a specific organism, and it seems to us simply a subterfuge to avoid a definite diagnosis. Surely an apparently tuberculous disease is either tuberculosis or not, and it does not seem to us to tend to the advance of scientific medicine to complacently label a doubtful case "para-tuberculosis," and feel that we have done our duty.

Culpable Homicide. THE case of Daniel M'Linton, the admitted assassin of the late Mr Ivison Macadam, raises some interesting points both of law and of medicine. The jury refrained from the verdict of murder, and preferred that of culpable homicide, on the grounds, presumably, that the prisoner's crime was based on resentment and suspicion which were partly delusional.

One hears it said on all sides that a man is surely either mad or not, and, if not, then fully punishable; that a verdict of culpable homicide is shuffling and contradictory. But the law recognises degrees of culpability in homicide (precedents are ample) just as medicine recognises degrees of mental impairment short of insanity. Fancifulness, suspicion, irritability, vexation, may result from ill-health which is not insanity; and it is good sense that that should be held to modify, though not to extinguish, responsibility. It is good sense also that, unless crankiness be kept in check, punishment may follow, and that the crank, like the drunkard, should be deterred from self-indulgence which may lead to crime.

A further principle, for which also there is precedent, emerges from this case—that insanity *per se* does not excuse murder. The insanity must be proved to fully account for the crime, to have determined it, either by weakening the capacity to understand its nature, or by the imposition of an irresistible impulse. That takes a good deal of proving in delusional cases, and it is well that it should. Delusions do not prove insanity. To support a plea of insanity, delusions of persecution must be proved such as to be explained by cerebral disease, and only so. They must be part of a recognisable type of insanity, as, for instance, when they are correlated to hallucination or obsession, are intrinsically extravagant and impossible, comprise belief in the use of unseen and intangible agencies, are to the patient incontrovertible despite all evidence, and survive all changes of circumstance:—qualities which were not proved in M'Linton's case. Systematic exaggeration and misinterpretation and perversion of the facts of experience do not, of themselves, constitute insanity; and even incipient insanity, as this may have been, does not bar punishment unless it has sufficiently invaded either the capacity to understand the quality and the consequences of the crime or the power of will to refrain from it.

The general sense of justice and of logic would be better satisfied if in such cases the jury found the prisoner guilty, but with a strong recommendation to mercy.

DR MILROY has been appointed Professor of Physiology in Queen's College, Belfast, in succession to Professor Thompson,

transferred to Dublin. Professor Milroy has been a most successful and popular teacher in Edinburgh, and Belfast is fortunate in securing his services.

DR ERNEST THOMSON has been appointed Ophthalmic Surgeon to the Glasgow Maternity Hospital. This is, we understand, the first instance of such an appointment.

General Medical Council.

THE Profession in England have shown their approval of Sir Victor Horsley's past work, by returning him to the Council by the very handsome majority of 4567 votes over the gentleman who was so ill-advised as to allow himself to be persuaded to oppose Sir Victor. The vote is an encouragement to those who believe in the principle of direct representation.

Obituary

RUDOLF LUDWIG KARL VIRCHOW

BORN OCTOBER 13, 1821; DIED SEPTEMBER 5, 1902

THE story of Virchow's life is well told in current numbers of the *Lancet* and *British Medical Journal*, so that only the main facts need be recited here.

He was born near Stettin, in Pomerania. As a youth he was distinguished for his mastery of languages, knowing Latin, Greek, French and English well, and even giving some attention to Hebrew. He received his early medical education at the Friedrich Wilhelm Institut with a view to entering the army, but so marked were his abilities that he was released from active service and appointed assistant at the Charité Hospital, Berlin, with which his name will ever be associated.

In 1847 he became Extern. Lecturer on Pathology, and founded the *Archiv für Pathologische Anatomie und Physiologie*, which since then has been one great record of contemporary advance in medical science.

In 1848, being appointed to investigate an epidemic of Relapsing Fever in Silesia, he formed such strong opinions, and on his return denounced the evils from which the disease resulted, and the government under which they were allowed, with such energy and disregard of his own interests, that he was compelled to resign his appointments in Berlin.

He was at once offered the Professorship of Pathology at Würzburg, and remained there for some years. Whilst there he published his "Cellularpathologie," with the famous dictum, "Omnis cellula e cellulâ" as text. "Recognising the value of Schwann's theory as showing that all physiological activity must be referred ultimately to the cell, that the cell is the seat of life, and that vital manifestations are due to its activity, Virchow showed that the same principle was equally valid for pathological relationships, and that in an abnormal modification of these same cellular activities is to be found the explanation of disease."

"I blocked for ever the last loophole of the opponents, the doctrine of specific pathological cells, by showing that even diseased life produced no cells for which types and ancestors were not forthcoming in normal life."

His fame rose so high that he was recalled to Berlin, and the Government undertook to build for him a Pathological Institute in connection with the Charité Hospital. In this he housed his Museum, which at the time of his Jubilee Celebrations contained 25,000 preparations.

In Berlin he continued his investigations, which have paved the way for so many succeeding workers, and illuminated practically every department of medicine.

Extensive as his professional work was, it was not enough for Virchow, who served his fellow-men in other fields as few others have done.

He became a member of the Berlin Municipal Council, and there by his persistence and arguments, in face of strong opposition, inaugurated those sanitary reforms which have placed Berlin in the front rank as a healthy city. In 1862 he entered political life, and became the leader of the Radical Party, showing in parliamentary discussion the same mastery of detail and honesty of purpose as were evident in his scientific work.

He was also a recognised authority on Archæology and Egyptology, every subject which he touched gaining something from his genius.

His sympathies were wide and cordially extended to Great Britain, where he saw the liberty and advancement in matters concerning the good of the multitude which he fought for for his own people. He paid occasional visits to London, where he gave the Croonian Lectures in 1893, and the Huxley Lecture in 1898. Amongst the many political and scientific honours showered upon him, he valued none more than the Copley Medal conferred upon him by the Royal Society in 1893.

For men trained at Edinburgh University, however, the best

remembered visit was that which he paid to Scotland in 1884, on the occasion of the Tercentenary celebrations, during which he was one of the most honoured recipients of the LL.D. degree.

The speeches which he delivered were characteristic of the man, and well bear perusal.

In his first speech, after praising the Edinburgh school, he continued: "I see immediately before me and after our great Schwann the much lamented Goodsir, and I find after me a long series of younger friends whose scientific education I helped to guide in the same direction as I think that distinguished professor would have conducted them. A professor is not only a teacher—*docendo discimus*. I know what I myself have received, and what science has received from scholars. The modern professor is not charged to construct new dogmas; his duty is to educate independent observers. . . . May the spirit of true science never disappear from these buildings. May they serve to increase, not only the welfare of the city, not only the glory of this land, but also the science of Medicine throughout the world."

The theme of his address to the students on the same occasion may be stated as *Facta non Verba*. After discussing his relationship to Darwin and Darwinism, and stating his belief that every generation is legitimately descended from another precisely similar, and that no trace of any predecessor of man intermediate between him and the ape had ever been discovered, he continued with a notable reference to Liebig. "This day, ten years ago, Liebig died. I recall his memory at this moment to repeat one of his memorable sayings: 'Natural Science is modest.' He meant that science should be confined within the limits of observation. Every man who goes beyond that sphere becomes a transcendentalist, and transcendentalism has always been dangerous to science." . . . "During, I may say, the last fifty years, medicine has developed in the most remarkable way. It has made more real progress than perhaps during the 2000 years before that. And the cause has been that medical men began to look at the facts, actually and humbly acquiescing in the facts and learning to criticise all theories in the severest way; to study nothing but the facts and to seek truth only on this foundation of facts."

Last autumn, on the occasion of his eightieth birthday, delegates from every land assembled at Berlin in his Institute to do honour to the *Altmeister*, the Grand Old Man of Pathology, and his vigour justified the hope that some years of usefulness were yet before him.

On January 5th of the present year, in jumping off a car, he slipped and fell, sustaining a fracture of the neck of the femur.

He recovered from the shock, and for a time seemed to be progressing favourably. A few weeks before his death, however, he began to fail in health, and after being brought back from Harzburg to Berlin he rapidly sank, and passed away peacefully on September 5th.

"Non est lugenda mors quam immortalitas consequatur." These are the words with which Dr Guido Baccelli concludes his eulogy of Virchow, and fitting is it that such a thought should "temper our deep fraternal sorrow" at the loss of the great master. His work, which went far to lift Medical Science out of the depths of empiricism, and which set it far on its voyage to the Light, is the common heritage of those who seek that Light in all countries of the civilised world. Well has he earned his rest, and the realised companionship of the immortals.

Clinical Records

MULTILOCULAR OVARIAN CYST WITH TWISTED PEDICLE SIMULATING APPENDICITIC ABSCESS

By J. W. DOWDEN, M.B., F.R.C.S.Ed.

MRS M., aged 44, was admitted to the Royal Infirmary, Edinburgh, August 9, 1902. When seen shortly after admission she was lying on her back; her face was pale, anxious and drawn; the lips were dry and the eyes bright. She gave the impression of being seriously ill.

On inspection, the abdomen was full but not distended. The right side was almost motionless, both on quiet and deep respiration. There was distinct fulness visible in the right iliac region, most obvious slightly below M'Burney's point. The skin was unaltered in appearance.

Palpation was almost painless except where the swelling was evident; here the pain was very marked, and the abdominal muscles were rigid. The swelling was as large as the closed fist, was elastic to touch, indistinct in outline, and dull on percussion.

No rectal or vaginal examination was made, nor was the blood examined; the urine was normal. The temperature was 98°, the pulse, weak and thready, 136. The tongue was covered by white fur.

History.—A week before admission she was seized with

colicky pains in the abdomen, chiefly in the lower part; she felt very sick and weak, but managed to get to bed. Hot fomentations were applied, with but little relief. The pain became continuous; it was located in the right lower side of the abdomen, and there was tenderness on touching the part. There was no history of any similar attack, and she had not noticed any swelling. The symptoms continued unabated, except that constipation, from which she suffered at first, gave place to diarrhœa. Nothing abnormal was noticed in the stools. Micturition was painless.

Taking into consideration the onset and severity of the symptoms, the localisation of the pain and swelling, and the sense of elasticity conveyed on palpation, a diagnosis of abscess in connection with the appendix was arrived at; the pulse and temperature, so often unreliable guides, were disregarded. It was undoubtedly against such a diagnosis that the swelling was lower down and more median in character than usual, but a case of appendicitic abscess operated on only three hours previously revealed a collection of pus even nearer the middle line, and extending into the pelvis. In this case, too, there was a subnormal pulse and temperature, and no pain on micturition.

Operation.—An incision was made over the right semilunaris, and the peritoneum opened. This allowed the escape of about an ounce of bright blood, which at once showed that the case was probably not one of abscess. After the removal of the blood there appeared a lustreless, purplish-red area, on the surface of which were small patches, yellowish-white and sodden in appearance. The omentum was adherent at the upper part, while beneath, it dipped down towards the pelvis. Fluctuation was obvious on palpation, and the tumour passed towards the uterus, and not towards the appendix. Further investigations showed it to be an ovarian tumour with twisted pedicle.

The cyst was tapped, but the walls were so friable that they tore, allowing a large quantity of dark-red, tarry-looking fluid to escape into the peritoneal cavity, in spite of liberal gauze packing. After this fluid had been removed, numerous adhesions, especially posterior, were separated, and the tumour was drawn out. The pedicle had two distinct twists just at its junction with the uterus, the twisting being from above downwards and forwards. The pedicle, including a portion of the uterus, was transfixed and ligatured with silk. The cavity was dried, but as there was free oozing from broken adhesions, a glass drainage tube containing some strands of sterile worsted, which acted admirably as a conducting "wick" for the blood and serum, was inserted. In addition, a syringe was used from

time to time to suck the cavity dry. The tube was removed on the second day, and the patient made an uninterrupted recovery.

Recent Literature

CRITICAL SUMMARIES AND ABSTRACTS

MEDICINE

PARATYPHOID OR PARACOLON INFECTION

By G. LOVELL GULLAND, M.D., F.R.C.P.Ed.,
Assistant Physician to the Royal Infirmary, Edinburgh

IT has long been known that in every series of cases of fever presenting the clinical picture of typhoid in which the agglutination test has been carried out systematically, there is a small percentage in which the test gives negative results, no matter how carefully or frequently it is carried out. These cases present no definite clinical distinction from others in which the test is positive, and they have sometimes been used as an argument against the reliability of Widal's reaction. During the last few years these anomalous cases have been studied by many different observers, and it has become evident that a proportion of them, though not all, are due to infection, not by the typhoid bacillus, but by a closely related organism, intermediate in its characters between the bacillus typhosus and the bacillus coli, and closely related to the bacillus enteritidis and others, which was first described by Widal as the "paracolon" bacillus. About thirty of these cases have been described with all necessary bacteriological detail, and a few *post-mortem* examinations have been made. Of course, this does not by any means represent the actual number of cases which occur, but the differentiation of the paracolon bacillus from the bacillus typhosus requires a laboratory equipment so complete, a knowledge of cultural distinctions so minute, and so great an expenditure of time, that it is hardly surprising that no greater number of cases has been worked up. Moreover, the disease is evidently comparatively rare. It seems usually, though not invariably, to occur in association with typhoid epidemics, but we have as yet no knowledge of the conditions of infection, nor does there seem to have been any connection between the cases. One case of laboratory infection has occurred; a medical man who was working with the cultures obtained from one of Schottmüller's cases contracted the disease. The most recent papers on the

subject are those of Strong (*Bull. Johns Hopkins Hos.*, May 1902), and of Johnston, Hewlett, and Longcope (all in *Amer. Journ. Med. Sci.*, August 1902). The three latter all discuss different aspects of the condition with full summaries and references to the literature, which I need not therefore further cite.

Locality and Incidence.—The disease is widespread. It has occurred, or rather has been recognised, in Paris, where the two first cases were described by Achard and Bensaude in 1896; in the United States, especially in Baltimore and New York; in the Philippine Islands; in Germany, especially in Bremen, where a run of cases were named "febris gastrica Bremensis"; and a doubtful case in Liverpool. Of course this only means that in these places the cases have come into the hands of observers alive to the existence of the condition and competent to investigate and report upon it. Most of the cases have occurred between July and November, none from December to February; three-fourths have been young adults. The duration of the disease has varied from twelve to eighty-four days; about half of the cases were mild, a quarter moderately severe, and the remaining quarter severe, of which two or three have died.

Clinical Features.—These are practically indistinguishable from those of typhoid fever, when one takes into consideration the known variability of that disease. But the onset, which may be preceded by two or three days of subnormal temperature, is rather more rapid, and may even take the form of a rigor; while the temperature during the disease may be more irregular that that of a classical typhoid, with marked remissions, even early in the disease, and irregularity without the occurrence of complications. In three cases a termination by crisis has occurred, though lysis is more usual. Single relapses have occurred in three cases, a second relapse in one. These relapses were shorter than the original fever, and usually terminated by crisis.

Rose-spots, varying greatly in number, have generally been present. The spleen has been palpable in rather more than half the cases, and enlarged to percussion in others; in a few it was not enlarged, though some of them were severe cases. Headache, weakness, malaise, loss of appetite, slight bronchitis, were the initial symptoms, and in the majority of cases these were associated with or followed by diarrhœa, which is relatively more frequent than in typhoid. Abdominal distension and tenderness were usually present, both in the cases with diarrhœa and those with constipation. No leucocytosis has been observed in the ten cases in which the blood was examined, except in a relapse in Hewlett's case. As this relapse seems to have

been due to a pleuro-pneumonia, however, the leucocytosis was to be expected. Albuminuria was present in ten cases out of twenty-one in which the state of the urine was reported on, and the diazo reaction was usually if not always present.

The complications observed have been purulent arthritis, myositis, femoral phlebitis, cystitis (twice), while a costo-chondral abscess and bacilluria have occurred as sequelæ.

Morbid anatomy.—Only two undoubted cases have come to a *post-mortem*, those of Strong and Longcope. The appearances in the two were practically identical. Heart and lungs showed nothing unusual, the spleen was large, soft, friable, and dark in colour. Liver and kidney showed cloudy swelling, and the liver contained also multiple focal necroses. These occurred in the middle zone of the lobule, contained no organisms, and were of the kind that Flexner has shown to be common in acute infections of all kinds. The mesenteric glands were normal. The main interest in the examination was of course in the intestine, and in both cases the large and small intestines were alike normal throughout. There was no ulceration, no swelling of the lymphoid tissue of the intestine, and even on microscopic examination nothing unusual could be made out.

Specific lesions of any kind are therefore entirely wanting, and the appearances are those of a generalised infection. It may be mentioned that the paracolon bacillus has been cultivated from the spleen *post-mortem* in both cases, and in Longcope's case also from the heart's blood, lung and liver, while plates made from the mesenteric glands, gall-bladder and cerebral fluid gave negative results.

Bacteriology.—In almost all cases in which the attempt has been made, the characteristic bacillus has been cultivated from the blood during life, and while, in order to succeed with the typhoid bacillus, the blood must be diluted with large quantities of melted agar or bouillon, in some of the paratyphoid cases the organism has grown freely after spreading a few c.cm. of blood over the surface of agar tubes or plates. The organism has also been obtained during life from the fæces, urine, vagina and rose-spots. It is a small, actively motile bacillus with rounded ends, with ten or twelve flagella, decolourised by Gram's method, exactly similar in appearance to the bacillus typhosus, and agreeing with it in many of its cultural peculiarities. These are tabulated by Johnston, and are shortly as follows:—On agar plates and slants, in gelatine stabs, on potato, in bouillon flasks and tubes (no surface pellicle), and on litmus milk the growth is like bacillus typhosus; on glucose agar, like bacillus coli, a large amount of gas being developed after eight hours' incubation. In one per cent. glucose bouillon there was a profuse

gas production, but this did not occur with lactose or saccharose bouillon. All the available paratyphoid bacilli obtainable from different sources were compared with regard to their behaviour in litmus milk, and could be divided roughly into two groups: the first in which there was no terminal alkalinity or a long-delayed reaction, the second in which terminal alkalinity appeared in one or two weeks. Hewlett points out that on the Hiss semi-solid tube medium there is abundant production of gas, with growth along the stab and out from it in radiating comma-shaped streaks, a typical "colon" growth. The organism differs from the typhoid bacillus in that it produces gas in glucose, and does not cause a diffuse clouding of the Hiss semi-solid medium. It differs from the colon bacillus in not fermenting lactose, not coagulating milk, and not, at least readily, producing indol in Durham's medium. It was thought at one time by Bensaude that the bacillus was identical with Nocard's bacillus psittacosis, the organism which, in 1892, caused an outbreak of "infectious pneumonia" in Paris after the importation of several hundred parrots from South America. The clinical features of this disease were quite different, however, from paratyphoid fever, and the organisms are now known not to be identical, though they have many resemblances. As far as can at present be made out, the paracolon or paratyphoid bacilli certainly differ from bacillus coli, bacillus typhosus and bacillus dysenteriæ, while they are closely related to the large group of organisms which includes bacillus enteriditis, bacillus psittacosis, bacillus morbificans bovis, and bacillus choleræ suis. The line of division between these groups of closely allied organisms is an exceedingly delicate one, and extreme precautions have to be taken in establishing their characteristics. There seem even to be slight differences between the different strains of paratyphoid organisms, but it is possible that these will ultimately be found not to involve a specific distinction, as has already been found to be the case with different strains of bacillus dysenteriæ. Agglutination reactions are of much importance in this connection. None of the sera of paratyphoid cases agglutinate the bacillus typhosus, though two cases are on record where there was a mixed infection by both organisms. The sera of paratyphoid cases always agglutinate the organisms which have been isolated from their own blood, even in high dilutions, but do not always agglutinate the paratyphoid organisms derived from other cases. This, however, does not necessarily prove that the organisms are distinct; for in the coli group, for instance, two varieties, absolutely indistinguishable with regard to morphological and cultural characters, may show no tendency to interagglutination. Typhoid bacilli, on the

other hand, show only minor differences in this respect towards potent typhoid sera.

Now that general attention is directed to these cases, we may expect a much larger number to be reported, and may hope that such obscure points as their ætiology, their relation to true typhoid, the apparently puzzling fact of the occurrence of marked intestinal symptoms without intestinal lesion, and so on, may be explained. Moreover, it must not be forgotten that not all the clinical typhoids without Widal's reaction are due to the paratyphoid bacillus. This may possibly be a further field for differentiation.

The Cacodylates in the Treatment of Phthisis.—It may be of interest in connection with Sir Thomas Fraser's recent paper on the cacodylates in this Journal (May 1902), to note that Kock has recently been using cacodylate of soda extensively in the treatment of phthisis (*Nord. med. Arkiv.*, 1902, Afd. II.; *Inre medicin*, Häft I., Nr. 5). Sir Thomas expressly avoided using the cacodylates in pulmonary or other forms of tubercular disease, because of the "difficulty in them of instituting comparisons between the effects of different medicinal substances, and of the impossibility of arriving at trustworthy conclusions unless a very large number of cases is dealt with." Kock's observations therefore may be used so far to fill this gap, for we are well aware that arsenic in inorganic form is valuable in the treatment of phthisis, and the cacodylates might perhaps in some cases be preferable to the inorganic form. Kock took 26 cases of phthisis, 6 in the early stage (of slight consolidation), 13 in the second stage (of a certain amount of cavity formation), and 7 in a more or less cachectic state. These cases were examined and are reported with great care and minuteness. The cacodylate was always given subcutaneously, in the following prescription :—

Sod. cacodyl.	gramm. 6·4
Ac. carbol. spir.	gtt. 10
Aq. dest., q.s. ad.	c.cm. 100

Of this 0·4 c.cm. daily was given at first, and this was increased each day by 0·2 c.cm., till a dose of 2·0 c.cm. was reached; that is to say, in nine days. Then a pause of nine days was made, thereafter the course was repeated, then a pause, and so on. The patients were not treated with the cacodylates until after they had been three or four weeks in hospital, in order to exclude the improvement naturally consequent on rest and good feeding. They were not treated in the open air, nor given any special diet, and all precautions that could be thought of seem

to have been taken to make the experiment a really satisfactory one.

The results he came to were as follows:—Cacodylate of soda has the same action on the body in the main as arsenic. The agreement is to be seen, first, in its secondary effects. Of those which were probably to be ascribed to the cacodylate, he observed sickness, vomiting, gastric pain, anorexia, diarrhœa, headache, facial congestion, epistaxis, hæmoptysis, psychical excitement, rise of temperature, localised perspiration and albuminuria. A garlicky smell of the breath and of the sweat, which arise from the production of cacodylic oxide, are of course characteristic of the cacodylates. This very unpleasant symptom was supposed not to occur when the drug is given subcutaneously, but Kock found that it did so. The subcutaneous method also sometimes gives rise to itching, redness and induration. The secondary effects mentioned usually occur singly, and thus do not give rise to much inconvenience; but several may, in certain cases, occur together, and give a very characteristic picture of chronic poisoning.

The second point of agreement is in their relation to the blood. Cacodylate, like arsenic, causes a very rapid increase in the number of the red corpuscles. A simultaneous increase of hæmoglobin may appear, but never to the same extent.

The third point of agreement is in their relation to phthisis. Cacodylate, like arsenic, diminishes the amount of sputum; sometimes, but less markedly, the amount of cough; diminishes the tendency to night-sweats; and sometimes brings down the temperature. In addition, it seems to have a favourable effect on the local processes in the lungs; crepitations diminish, and sometimes dulness also decreases. In some of the severer cases, on the other hand, it seemed to have a bad effect, as the treatment was followed by an acute exacerbation of the process with loss of weight and increase of all the symptoms.

It will be observed that Kock's results are not quite the same as Sir Thomas Fraser's. The latter regards the cacodylates as "useless therapeutic agents in so far as they are compounds of arsenic"; while Kock's very careful blood examinations in particular show that upon that tissue, at any rate, they have a very distinct arsenic effect. That has, moreover, been my own experience. When the cacodylate of soda was first introduced, I tried it for some time in cases of anæmia and tuberculosis, and found that while it certainly had an arsenic effect, it was no better in that respect than inorganic arsenious salts; and on the other hand, it was more common to have unpleasant secondary effects with it. Therefore I ceased to use it.

SURGERY

INTESTINAL SURGERY

By H. M. W. GRAY, M.B., F.R.C.S.Ed.,
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THE volume of v. Bruns' *Beiträge zur Klinischen Chirurgie* for June 1902, is specially dedicated to Professor v. Czerny on the completion of his twenty-fifth year as director of the Heidelberg Surgical Clinic. All the articles are contributed by past or present assistants, and only a few of those articles bearing on the above subject will be noticed here.

Bernhard v. Beck (Karlsruhe) gives **Further Experiences in Operative Treatment of Diffuse Purulent Peritonitis—a series of 100 cases.** The results recorded justify a close perusal of the methods by which they were attained.

Causes.—In 77 cases from lesions of alimentary canal (in 66 of these from appendix); in 11 cases from female genitals (puerperal, purulent salpingitis, or suppurating ovarian cysts); in 2 cases from liver and gall-bladder; in 10 cases from trauma.

Symptoms.—*High* fever was present in 81 cases, especially in those resulting from gastro-intestinal causes. All the traumatic cases showed severe collapse temperature. In some cases, during the later stages of severe peritonitis, the temperature was depressed; but in these the pulse was rapid and irregular, whereas early febrile cases might not have quickened pulse. The abdomen was always diffusely tender. Special diffuse zones of hyperæsthesia indicated the origin of the trouble — *e.g.* M'Burney's point.

In 58 cases, examination per rectum showed tense and tender bulging in Douglas' pouch. The fact that in several cases the temperature in the rectum was 1·5° to 2° higher than in the axilla, although no exudation was noticeable, was held to support the idea that inflammation was present in the neighbourhood of the rectum! Peritoneal exudate was demonstrated in 88 cases. Exploratory puncture was never done. Other usual symptoms are detailed.

Treatment.—Operation was proceeded with immediately after diagnosis, unless shock, from perforation, trauma, or transport, existed. In this case, the routine was—bed for a short time, preparation of skin, saline infusion to stimulate diuresis, enema of digitalis and strophanthus, stomach washed out just before operation. One hour was usually the longest time thus employed. Chloroform, preceded by injection of morphia and atropin, was the ordinary anæsthetic. After suitable incision, by rolling the patient over, the peritoneal fluid was allowed

to escape. The cause of peritonitis was sought and, if possible, removed; otherwise tampons were inserted all round it. The peritoneal cavity, especially the various pouches, were carefully wiped out. Gauze and tube drains were inserted in Douglas' pouch, below liver and spleen, in lumbar regions, at root of mesentery, and above and below the omentum. The wound was sutured at extremities only, and covered with dry dressing. The foot of the bed was elevated to favour drainage of Douglas' pouch, to avoid displacement of small bowel into the pelvis and kinking of the upper, usually well-filled, bowel at the fossa duodeno-jejunalis.

The first dressings were changed after 24 hours. The drains were left *in situ*, and changed three or four days later. At 8 to 14 days the tubes were removed, but light gauze drainage was continued usually for about 4 weeks. In the fourth or fifth week, to avoid hernia, the wound was excised, and the abdominal wall sutured in layers. When this was not done, a special abdominal belt with pad was provided.

Flushing out with saline solution has been given up in the last 88 cases, since 1900. It was thought that great shock resulted from it, especially at the end of operation, whereas swabbing out with pads caused only momentary mechanical irritation, and that on small parts of the peritoneum at one time. Also less reflex effect on heart and pulse was apparent.

If the bowel was much atonied and distended, one or several incisions were made into it, its contents evacuated, and the incisions closed. This removed toxic contents and facilitated reposition.

Post-operative treatment received great care. The heart had to be strengthened, septic material removed from the body, the bowels regulated, abscess formation recognised and removed, and obstructive symptoms combated.

For several days no food was given by the mouth. Thrice daily nutrient enemata were given, and twice daily for thirst large enemata of salt solution, with the addition of tinct. digitalis and strophanthus. To promote diuresis and flush out the system, subcutaneous infusion of salt solution was employed, and in very septic cases intravenous injection.

To stimulate the bowel, enemata of a few ounces of oil were given overnight, followed in the morning by a larger injection of camomile infusion. To regulate peristalsis and avoid pain, atropin was given subcutaneously or by suppository once or twice daily for one or two days after operation. If this was insufficient, morphia was used—never opium. Atropin possibly helped to avoid trouble from adhesions during healing by promoting continuous and regular movement.

Fæcal fistula frequently formed 8 to 14 days after operation, especially in old-standing cases with multiple abscesses. Months were sometimes passed waiting for spontaneous closure. When there was no hope of this, the bowel was laid bare and enterorraphy performed. If this was unsuccessful, resection was done.

Serious hæmorrhage sometimes occurred from the erosion of large vessels. This was treated by subcutaneous injections of 2 per cent. gelatine or of ergotin, extract of hydrastis by the bowel, and packing, ligature or forceps. Subcutaneous or intravenous saline infusions were employed to make up for the loss of blood.

Septic products of the peritonitis and ptomaines from the decomposed bowel contents are always the greatest dangers.

Results.—100 cases; 54 *recoveries.*

In cases treated 10 to 12 hours after the beginning of the peritonitis, 8 recovered, 6 died. In cases treated 24 hours after, 17 recovered, 1 died. In cases treated 2 days after, 16 recovered, 6 died. In cases treated 3 days after, 12 recovered, 12 died. In cases treated 4 days after, 1 recovered, 21 died.

The prognosis is much worse in cases of rupture of the gastro-intestinal tract than in cases of peritonitis from inflammation thereof, probably because of the quicker and more general diffusion of septic material through the abdomen and the traumatic shock acting on the heart and central nervous system. Seldom was there recovery if the operation was postponed longer than 24 hours after the accident. Of 9 traumatic cases operated on in the first 24 hours, 3 recovered. Of 32 "inflammatory" cases *all* recovered. There is also an unfavourable prognosis in cases following obstruction, because the heart is already poisoned by fæcal ptomaines and is further overcome by the addition of septic products from the peritonitis.

In summing up with regard to appendix cases, Beck remarks that operation at the beginning of peritonitis does not injure the patient's chances or make the peritonitis worse. It is best to prevent general peritonitis by operating at once if there be suspicion of gangrene or perforation of the appendix, because the operation is simpler and shorter, and convalescence is easier because the strength is less taxed.

A. Nehrkorn (Heidelberg) writes on **The Methods of Incision and Suture in Laparotomy.**

There is no universal agreement amongst surgeons about either incision or suture. Some consider that the union of

dissimilar structures gives a stronger cicatrix than union of similar. Most men, however, rely on suture of corresponding layers.

Nehrkorn discusses the various methods of incision—through the linea alba, through the rectus, and by exposure of the edges of the recti by excision of the linea alba, these edges being subsequently approximated by suture (La Torre). By employing the median incision no nerves are severed, and therefore atrophy of muscle is avoided. This last has been observed both clinically and experimentally when a lateral incision has been made. The linea alba, however, is already disposed to hernia formation without the presence of a cicatrix, and because of the poverty of its blood supply it is little fitted for the formation of firm cicatricial tissue, whereas a strong, thick cicatrix is formed after the lateral incision. By incising laterally through the anterior sheath of the rectus, retracting the inner edge of the rectus, and then incising the posterior rectus sheath parallel with the cut in the anterior, the nerves are spared and a broad cicatrix is produced.

The relative merits of "mass" suture and suture in layers are discussed. Owing to the patient's condition in some cases "mass" sutures are compulsory. In very fat abdominal walls, or where there is great retraction of the fascial and muscular layers, layer sutures are necessary. In medium thick, fairly slack abdominal walls, either method carefully used gives good results. The advantages of mass suture are stated to be—better guarantee for nourishment of cicatrix, avoidance of dead spaces, less injury to the tissues, absence of foreign bodies in the wound, and quicker execution.

Nehrkorn finds from microscopic investigation that the approximation of the layers of the abdominal wall and therefore *restitutio ad integrum* is distinctly better in layer than in mass suture. The peritoneum is also better united—an important point, to my mind, for preventing troublesome adhesions to the back of the scar.

Disadvantages of layer suture were shown in the formation of hæmatomata anterior and posterior to the musculo-aponeurotic layers—the result of leaving dead spaces. These may break down into pus. Healing is best and quickest when the edges of the layers are accurately approximated—not overlaid. Healing is then similar to that in a tendon, for these so-called fascial planes are really tendons—aponeuroses. If the edges of the fascia are not approximated to within $1\frac{1}{2}$ to 2 mm., then they become united by a cicatrix, of which only the lateral parts become tendinous, and the centre is therefore more likely to yield. Also, if they are not accurately united, fatty tissue is

apt to interpose and greatly interfere with the resisting qualities of the scar.

Nehrkorn recommends mass suture coupled with fine buried suture to approximate the edges of the aponeuroses—not drawn so tightly as to curl these up or interfere with their vitality. This, in my opinion, does not obviate the possibility of adhesions forming to the back of the scar. With the object of preventing such adhesions, and also the formation of dead spaces, I have during the last three years always everted the edges of the peritoneum before suturing, and in using layer suture, have made the sutures approximating the edges of the posterior rectus sheath and those approximating the skin and subcutaneous tissue lightly catch up the underlying layer, *i.e.* the everted edges of the peritoneum in the former case and the anterior rectus sheath in the latter. (Catgut is used for buried sutures; silkworm gut or celloidin thread for superficial ones.)

Nehrkorn says that theoretically, a laparotomy wound, if sutured so as to produce a sound aponeurotic or muscular cicatrix, will in three or four weeks protect the patient from mishap; whereas a simple connective tissue scar will require much longer, and will then not be so secure, necessitating after-support by belt, etc.

Heinrich Braun (Göttingen) writes on **Congenital Occlusion of the Small Intestine and its Operative Treatment.**

To judge from statistics the number of such cases is small—one in 15,000 to 20,000. Apparently no case has yet been saved by operation, but some extraordinary cases are on record, *e.g.* Baux's case—a girl who vomited fæces every second or third day, and was fourteen years old; Bartholin's case—a forty-year old man who voided fæces by the mouth and urine by the umbilicus; Denis' case—occlusion of both anus and urethra, fæces and urine voided by the mouth. A certain hereditary influence seems to exist, as several instances are quoted where two or three members of the same family were affected.

Braun describes his own case, and then discusses the various *causes* suggested. He thinks the most frequent is intussusception followed by necrosis of the intussusceptum—the ends of the bowel slipping apart after being sealed up. This was certainly the cause in his own case, where a necrotic tag was found inside the distal blind extremity of the bowel. This process actually occurred in an adult on whom an operation—enterostomy—for internal strangulation was performed (Hadlick). Fœtal peritonitis (*e.g.* syphilitic) may be the cause, by forming obstructing bands. Persistence of Meckel's diverticulum may also be a

cause, the sac pulling on the bowel, making it anæmic, causing gangrene and subsequent atresia. It is very doubtful if ulceration is a cause. Other causes, *e.g.* encircling by amniotic bands or umbilical cord, embolism of the mesenteric artery, and axial rotation round the mesentery, are discredited.

There may be merely one or more thin partitions of mucous membrane causing the occlusion, but usually the bowel is quite divided, with the ends more or less apart. The upper part is always widely distended ; the lower, much contracted.

Symptoms are fairly alike in all cases. Vomiting occurs either at once or before the end of second day of life, while through the rectum, if this is present, is passed a small amount of whitish slimy mucous. A bougie can often be passed 10 cm. into the rectum, which will also contain about 60 c.cm. of water enema. One cannot be certain where the occlusion is, judging from the time of commencement of vomiting; but in general, with occlusion of stomach or duodenum, vomiting occurs early, immediately after food, and is not bile-stained. It is of more value to note the distension of the abdomen. If occlusion be high, there is little distension; if low, the distension may be great.

Braun then discusses the various operations recommended. He decides that owing to the uncertainty of diagnosis of the site of the occlusion, and of its anatomical condition, one should, in such a case, on the second or third day after birth, open the abdomen by a small *median* incision below the umbilicus. If simple atresia is found, both blind ends of the bowel should be fixed in the incision and opened close together, so as to favour subsequent treatment. Early communication should be established between these openings, especially if the obstruction be high. The distal part may be gradually dilated by bougies and injections of water. The colon should be dilated by injections into the rectum.

Dupuytren's enterotome or Mikulicz's clamp is recommended to establish the communication, as preferable to a second laparotomy and entero-anastomosis. Murphy's button would be impossible because of the narrowness of the distal bowel.

In the after-treatment, pure milk diet should be avoided, as masses of curdled milk may obstruct the opening. This actually happened in a case of resection of bowel in a five months' old child.

An occlusion above the entrance of the bile and pancreatic ducts might be more favourable to operative treatment because the presence of bile and pancreatic juice would distend the distal bowel more, and gastro-enterostomy would be feasible.

In connection with this paper it is of interest and of practical

value to note that congenital *stenosis* of the small intestine occurs more frequently than is generally supposed. Dr Arthur Keith (Lecturer on Anatomy, London Hospital Medical College) states that it usually occurs two to three feet above the ileo-cæcal orifice, just above the usual position of Meckel's diverticulum; that it is slightly marked in 50 per cent. of all people, and well indicated in at least 10 per cent. It is a frequent site at which intussusception starts, some say *the* most frequent. In such cases of stenosis, it is common to find gastro-intestinal disturbances, especially chronic constipation, and often marked protrusion of the central part of the abdomen with distended actively contracting coils of bowel apparent on inspection. Enteroplasty or entero-anastomosis should be done in such cases; as when the patient is nearing manhood, death often occurs from pure weakness with great emaciation, or from some intercurrent trouble, *e.g.* pulmonary.

OBSTETRICS

PHYSIOLOGY AND PATHOLOGY OF PREGNANCY

By J. W. BALLANTYNE, M.D., F.R.C.P.Ed.,
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SURELY, albeit somewhat slowly, researches are being made into the physiological and pathological modifications of the organism during pregnancy. Without being a "nine months' disease," pregnancy is to many women a time of marked discomfort and of occasional suffering, and all facts that tend to elucidate the workings of the bodily organs during this period of stress cannot fail in the long-run to prove of benefit and to be capable of utilisation in therapeutics.

There is, for instance, the great question of the interchanges which take place between mother and fœtus. D'Erchia (*Annali di ostetricia*, xxiv. 208, 1902) has recently investigated the osmotic pressure of the maternal as compared with the fœtal blood, a subject upon which Veit, Krönig, Mathes, and others, have made researches. D'Erchia found that in 18 cases tested by him, the osmotic pressure of the fœtal blood was greater than that of the maternal in 10, it was less in 5, and equal in 3; the fœtal blood would seem in most cases to have a greater degree of molecular concentration, but not in all. It may be that there are alternating periods of osmotic equilibrium and disequilibrium, and that these are the chief cause of the active exchanges of material between mother and fœtus. D'Erchia tested also the

osmotic pressure of the amniotic fluid as compared with that of the maternal and fœtal blood, and found it constantly less whether the liquor amnii was normal in amount or in excess (hydramnios) and at all ages of pregnancy. Perhaps this fact may be taken as proof that the liquor amnii obeys the same laws as regulate the production of transudates. Laboratory experiments carried out by D'Erchia would seem to show that the fœtal membranes and the placenta behave like semi-permeable membranes.

G. Raineri (*Annali di ostetricia*, xxiv. 709, 1902) has investigated another very interesting physiological question—the bactericidal and antitoxic power of the blood during pregnancy. The tests were made with the bacillus of Eberth and that of Charbon, and with the diphtheria toxin. It was found that the serum of the blood during pregnancy had a greater bactericidal action than that in the non-pregnant state; that there did not appear to be any marked difference between the microbicidal action of the serum at different times in pregnancy; that the bactericidal power appeared to be diminished at the close of pregnancy and also at the beginning of labour; that for the diphtheria toxin the antitoxic power of the serum in pregnancy was increased as compared with that of normal serum; that this antitoxic power varies with the different periods of pregnancy, being less marked in the first trimester and more marked in the second and third, and being diminished at the end of gestation and beginning of labour; that in the puerperium, after about 25 days the antitoxic power is that usually found in the non-pregnant; an antitoxic power, less than that noted in pregnancy, is present in the serum of the blood at the beginning of labour; and that the serum of the fœtal blood has a slight antitoxic power at the moment of birth equal to that of the maternal blood at the same time.

The specific weight of the maternal blood and its relations to the development and sex of the fœtus have been studied by E. Tridondani. He made observations on 162 cases. He found that the specific weight of the blood in pregnancy was practically always less than in the normal non-pregnant state, that it was less in pluriparæ than in primiparæ, and that it diminished with the progress of pregnancy. He noted also that the diminution affected the whole blood as well as the serum separated from the corpuscular contents. The specific weight usually increased during labour. That of the fœtal blood was always much higher than that of the mother. When the density of the maternal blood was rather low (1055 or less) there was more often a male than a female fœtus (53:18); when on the other hand it was rather high (1056 or more), there was more often a

female than a male (50:28). The weight of the fœtus was greater (3270:3150 grammes) when the specific weight of the maternal blood was rather low than when it was rather high. Tridondani also made some observations on the specific weight of the blood in cases of eclampsia in pregnancy (11 cases), and found that it was not higher than the normal. In this respect his observations agree with those of Szili and not with those of Bousquet. It would seem, therefore, inadmissible to think of a retention of such substances as urea and salts in these cases. In this connection it may be pointed out that Oliphant Nicholson (*Journ. Obstet. and Gynæc. Brit. Empire*, ii. 40, July 1902), in a further article continues to obtain good results from the administration of thyroid extract in cases of eclampsia or impending eclampsia; he claims that by producing symptoms of thyroidism in an eclamptic patient the re-establishment of the renal secretion is secured. It would be interesting to know whether thyroid treatment in eclampsia produced any alteration in the specific weight of the maternal blood.

Catharine v. Tussenbrock of Amsterdam has also written (in *Talma's Festschrift*) on the chemical interchanges in pregnancy between mother and fœtus in cases of albuminuria. She reported a case of a patient aged thirty-nine, a vi-para, who had had three normal labours, then a premature confinement at the eighth month, and then an induction of labour at full time for eclampsia. In the present pregnancy (sixth) she had suffered from loss of blood at the second month, and in the first half of the fifth there had been a sudden escape of liquor amnii, followed by great diminution in the size of the uterus. There was much albumen in the urine which greatly decreased under milk diet. For thirty-seven days some liquor amnii continued to come away; then there were signs of retroplacental hæmorrhage, and after that the fœtal heart was no longer heard. Then, for the first time, the urine was found quite free from albumen. Two days later a slightly macerated six months' fœtus was expelled. The puerperium was normal, the urine remaining free from albumen. The placenta was carefully examined; in the decidua there were no changes save necrosis in one part where a large blood-clot lay between it and the chorion; in the fœtal part were many small white infarcts, very little syncytium covered the villi, and the middle-sized arteries of the chorionic villi were greatly thickened on account of hypertrophy of the intima. These changes in the fœtal part of the placenta are ascribed by the authoress to the toxicity of the blood, and perhaps this has also had an influence upon the formation of the infarcts.

In Tussenbrock's case the albuminuria disappeared im-

mediately after the death of the fœtus; but this is not a constant occurrence. Doubtless fœtal death must produce a direct effect upon the chemical interchanges in pregnancy, and this effect may show itself in alterations in the chemical composition of the maternal urine. Merletti (*Annali di ostetricia*, xxiv. 414, 1902) has investigated the alleged connection between maternal urobilinuria and intra-uterine death. He found that in normal pregnancy there was a constant and a sensible increase in the amount of urobilin excreted (urobilinuria of pregnancy); it was double or even three times as much as that found in healthy non-pregnant individuals. In five cases of intra-uterine death Merletti found an increase in the usual amount of urobilin, as detected by the spectroscope, which in from five to ten days after labour was over had disappeared. He is of opinion that a noteworthy increase in the degree of the physiological urobilinuria of pregnancy taken in conjunction with the other signs of fœtal death ought to strengthen the diagnosis of that antenatal catastrophe.

An interesting article on the "Biology and Pathology of Pregnancy" is that by Julius Neumann of Vienna (*Interstate Med. Journ.*, ix. p. 301, June 1902). Following upon the presence of an impregnated ovum in the uterus are distinct changes in the general condition of the woman. Most of them are incident to pregnancy—that is to say, they are physiological sequelæ of the normal process of fecundation. "From a teleological standpoint, therefore, we ought to consider them normal; but, as physicians, we are bound to call them pathological." These changes are of two kinds, the psychic and the somatic. There may, for instance, be a change in the disposition of the woman (some become bright, others merry, some quarrelsome, others amiable); this psychical change, further, is not always due to external circumstances, for it may occur before the patient knows she is pregnant. The somatic alterations of pregnancy are more common. "Sickly, poorly-nourished, or anæmic individuals not so rarely begin to gain in flesh and flourish; healthy women, however, begin sometimes to fall away, and feel miserable and weak." Continuous nausea and sickness has probably much to do with the latter type of change. We do not know the real causes for these psychic and somatic alterations, but they are probably due to changes in the metabolism of the body. Auto-intoxication is the prevailing theory at the present time, and there are facts in support of it—*e.g.* the increased patellar reflex, the lessened resistance of the skin against electrical currents, and the occurrence of dermography in pregnant patients. Suggestion plays a certain part in the symptomatology of pregnancy. In the second half

of the period of utero-gestation, two new factors come into play and produce their effects—the movements of the fœtus, and the pressure results of the enlarged uterus. The changes in the vulva and lower limbs (œdema, dilated veins, etc.) may approach very closely to the pathological. An old chronic catarrh of the vagina or cervix may recrudesce; an old gonorrhœa may begin to show acute symptoms. Then, again, there is the tendency in pregnancy to become infected. The condition also is liable to bring about a recrudescence of old, non-infectious inflammations of adjacent organs or tissues. A chronic parametritis may return to an acute stage; on the other hand, old exudates in the pelvis may be absorbed, and firm adhesions be softened and relaxed. But, again, an old encapsulated abscess (*e.g.* perityphlitic) may rupture, and produce general peritonitis. Neoplasms of the uterus usually increase in size during pregnancy, but in rare cases they shrink after labour is over to a size smaller than that they had previously been. Neumann does not believe that pregnancy produces a distinct predisposition for the formation of neoplasms, innocent or malignant, with the sole exception of deciduoma. Diseases in remote organs are generally aggravated by pregnancy; and the kidney is the organ most often injured by gestation. The writer refers to an interesting case of adherent placenta, in which in three successive labours the placenta had to be removed by the hand; on the third occasion, death took place two hours post-partum; on microscopic examination, he found complete absence of the decidua serotina, the chronic villi being directly attached to the uterine muscles. Analogous to this is the abnormally firm attachment of some hydatid moles to the interior of the uterus. In the hydatid moles that were followed by the development of deciduoma malignum, Neumann found that the syncytium covering the villi had invaded the deeper stroma of the villi, as does the epithelium in cancer.

OPHTHALMOLOGY

THE DETECTION AND REMOVAL OF FOREIGN BODIES FROM THE EYE

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Result of X-ray Diagnosis and of Operation in Injuries from Foreign Bodies in the Eye. By Wm. M. Sweet, M.D.,

The Philadelphia Medical Journal, Feb. 1, 1902.—Dr Sweet tabulates sixty-five cases, and places them in groups, according to the part of the eye in which the foreign body had been lodged. From the study of the groups of cases given, he arrives at the following conclusions:—

"1. The Röntgen rays offer the most certain method of detecting and locating foreign bodies in the eye."

"2. The position of the foreign body should be determined in all cases before the magnet extraction is attempted. Frequent insertion of the small magnet into the vitreous in the hope of finding the metal injures the eye, and renders later attempts at extraction difficult; while the employment of the large magnet is not without danger when the position of the body is not known."

"3. Early extraction offers the best chance of saving the eye. When the track of the body is through the cornea and lens, its position in the vitreous will indicate whether less damage will be done by removing the metal through the open entrance wound, or through a new opening in the sclera, close to the indicated position of the body."

"4. The more extended use in the future of the larger magnet in cases of steel in the vitreous chamber to draw the metal to an opening in the sclera, after its position has been accurately determined, will probably achieve better visual results than have been obtained in the past with the small magnet introduced into the vitreous."

"5. Iron or steel which has remained in the eyeball until a fibro-cellular covering covers it cannot be dislodged with the magnet. Extraction with forceps, and the employment of normal salt solution to replace any vitreous lost, has resulted in severa instances in eyeballs of good cosmetic appearance, and is an operation worthy of trial. Forceps extraction must also be employed when the body is of copper or glass."

"6. Extraction is a safe operation, and under proper precautions is free from the dangers of panöphthalmitis or meningitis."

Further Clinical Experiences with Haab's Giant Magnet, with some Experimental Statements regarding Hirschbergs' New Large Hand Magnet. By A. Barkan, M.D., *Archives of Ophthalmology*, Jan. 1902.—The writer refers to twenty-one cases in all, 75 per cent. of which recovered. He has so far not had to use the X-rays, but has relied on the giant magnet to act as a sideroscope to find the foreign body and then extract it, and the magnet has not failed him a single time in either task. "My experience has taught me that the foreign body is best removed through the enlarged initial opening, and that the giant magnet

can be relied upon to do its work from start to finish without assistance of any hand magnet, always under condition that the strongest magnet available (up to this time Haab's) be used. In Knapp's last publication the use of the hand magnet has proven unsuccessful in quite a number of cases. I find it of much use to thoroughly study the way in which the accident was produced, to have the patient demonstrate to me the position of his body with relation to the source of trouble, so as to get at the direction in which the chip of steel has travelled to and into the eye. In thus finding the position in which the magnetic force lines could be employed to the best advantage, it has happened to me repeatedly that in cases where extraction was unsuccessful at first, after the patient's head and eye were put in the same position as they were in when the accident happened, the extraction of the foreign body was promptly accomplished."

The writer is, however, favourably impressed with the new large hand magnet of Hirschberg, and recommends that the hand magnet might be tried first before using the Haab's magnet, for he thinks that undoubtedly both instruments will find, separately, or conjointly, their useful spheres.

A Report of Nine Cases, in which Haab's Magnet was used for the Extraction of Foreign Bodies from the Eye. By Holmes Spicer and A. F. Maccallen, London, *British Medical Journal*, Jan. 18, 1902.—Two of the cases recovered with $V\frac{6}{9}$; one with $V\frac{6}{12}$; three with $V\frac{6}{60}$; while in three cases the eye was lost.

The following general conclusions were added :—

"1. When the patient is brought up to the magnet it is the rule for severe pain to be experienced by him if a magnetisable particle is present in the globe. Haab's magnet is therefore of valuable diagnostic service in determining the presence or absence of a magnetisable particle."

"2. Localisation by the X-rays is extremely important. By their means it is sometimes possible to avoid injury to the clear lens in the extraction of a foreign body, and entanglement of the iris can be avoided if its precise situation is known. Nevertheless if some delay is unavoidable before the X-rays can be applied, we advise in certain cases extraction of the foreign body by the Haab's magnet without precise localisation ; *e.g.* (1) in which there is considerable inflammation ; (2) in which there is a recent traumatic cataract. In each of these cases there is considerable danger in delay."

"3. If there is a recent wound we attempt to remove the foreign body through it, using Haab's magnet alone. If this wound has firmly healed it is necessary to make an opening for

its exit. This may be either corneal, in which case the foreign body is withdrawn by Haab's magnet; or peripheral, in which case we usually employ the small magnet for the removal of the foreign body from the anterior chamber after it has been drawn forward by the Haab's magnet. The latter method is the one we generally adopt."

"4. In all cases it is most essential that entanglement of the particle in the iris and ciliary body should be avoided. By bringing the patient up to the magnet gradually from a distance, and by increasing the strength of the current slowly, this is to a certain extent guarded against. The idea of this manœuvre is to prevent the particle from rushing forward from its posterior position and burying itself in the iris."

The Removal of Foreign Bodies from the Eye. By Professor Haab, Zurich, Switzerland, *Ophthal. Record*, July 1902. — In an address to the *Section of Ophthalmology, American Medical Association* in June last, Professor Haab spoke favourably of the Desmarres capsule forceps for removing foreign bodies from the interior of the eye, saying that they caused but a slight wound and injured the vitreous as little as possible, but they were only of use when the splinter was free and visible in the vitreous. We possess valuable aids in the diagnosis of foreign bodies in the X-rays and sideroscope, but they require much skill and patience in their use, and can almost be dispensed with by the use of his large magnet. He described in detail the use of the large magnet in the extraction of foreign bodies from the eye, which with him had only failed 25 times in 165 cases, and in these cases the failure was due to the body being too firmly embedded in the posterior wall of the globe, or having pierced it completely, situated in the ciliary body, having produced fibrinous purulent exudation, or having been healed over for months or years. He had never observed any risks in its use and did not deem it necessary to have three different sizes, as advised by Hirschberg, the large magnet answering for all cases.

A Report of some Cases of Foreign Bodies in the Eye, where Haab's Magnet was used. By Dr Myles Standish, Boston, *Ophthalmic Record*, July 1902.—At June meeting of the *Section of Ophthalmology, American Medical Association*, the writer reported a series of eight cases, in which the Haab's magnet was employed with success, the method of procedure being to bring the point of the magnet almost in contact with the eye with its axis in a line of projection of the line of

entrance, so that the body was compelled approximately to retrace the track by which it entered.

Following this paper and that of Professor Haab, a very interesting discussion took place, which, on the whole, was favourable to the use of the giant magnet.

The Hygiene and Prophylactic Treatment of Myopia. By Dr Duane, *Arch. of Ophthal.*, May 1902.—In a paper read before the *Ophthalmological Section of the New York Academy of Medicine*, Dr Duane stated that the prophylactic treatment in myopia consists in the following:—(1) Making the patient wear the full correction of his myopia all the time, both for distance and near. This is of prime importance in all cases of myopia, low, medium and high, and if applied early may check the progress of the myopia altogether. (2) Proper attention to illumination, the size and legibility of the print, the quality of the paper in the books read, the relative height and disposition of the desk and seat, and the many other factors that have been brought out by the zealous investigators into the subject of school hygiene. These are important, but subsidiary matters. (3) In low and medium myopia, moderate restriction of near work, or rather its better distribution, so that it is done mainly by daylight and not for too long at any one time. Furthermore, momentary rest of the eyes at frequent intervals during the work. These rules to be the more strictly enforced, the higher the myopia and the younger the patient. (4) In high myopia with evidences of progress, much more stringent restriction of near work. Open-air work to be encouraged, and the adoption of confining and eye-taxing occupations forbidden. (5) In medium and especially high myopia, plenty of sleep and out-door exercise. (6) Re-examination of the patient at frequent intervals (which in the case of high myopia should be more frequent) to determine how much the myopia has increased. If it has increased, the glasses should be increased up to the full strength, and the hygienic regulations above detailed modified accordingly.

The author believes that the influence of near work in producing myopia, or at least in causing its increase, has been considerably overrated, the statistics on this point being more or less misleading.

Aspirin in Diseases of the Eye. By Dr Hans Kirchner, *Annals of Ophthalmology*, April 1902.—The author has used this product with the happiest results in the treatment of acute iritis. Cases which failed to yield to the salicylate of soda and salol were markedly benefited by the administration of aspirin.

The value of aspirin was not only seen in inflammations of rheumatic origin but in iridocyclitis from a variety of causes. The pain in this class of cases seems to vanish as if by magic under the influence of aspirin. Cases of scleritis and abducens paralysis were apparently uninfluenced. The author reports a case of iritis serosa where the pain disappeared and the exudates were absorbed under the influence of aspirin. Supraorbital neuralgia was promptly relieved, particularly the very acute cases. Headaches of obscure origin were dissipated by aspirin, so also headaches where the cause was known, but which had failed to yield to the usual remedies. Generally speaking fifteen grains were used at a dose, and this dose was sufficient to relieve the trouble. More than thirty grains were never necessary.

New Books and New Editions

Pediatrics. By T. M. ROTCH, M.D. Professor of the Diseases of Children, Harvard University. Third Edition. Royal 8vo, pp. 1021, with 205 illustrations and 12 coloured plates. London and Philadelphia: J. B. Lippincott Co. 1901. 25s. net.

DR ROTCH'S book has been so much quoted, and has had so much influence for good, that a new and re-written edition of it, like the present, cannot fail to receive a hearty welcome in all directions. On its first appearance six years ago, it was pretty generally recognised as representing a new and distinct type of text-book on the diseases of children. In some respects, indeed, it was contrasted unfavourably with certain of the older books; and it was especially noticed that different parts of it were very unequal in value. The chapters on some important subjects were disappointingly short and uninstructive; and certainly, if it was to be estimated by the space allotted to medicinal treatment, the author's faith in drugs seemed to be deplorably weak. . . It could not but be admitted, however, that such information as was given was evidently the result of personal observation, and that in some of the most important matters of all the author's experience had been exceptionally large and valuable. The details which he gave regarding the anatomy and physiology of infancy and childhood, and especially the discussion of all that related to the foods and feeding of infants, was altogether in advance of anything that could be found in other works in English then available. Dr Rotch approached his subject from the side of the structure and function of the normal baby more openly and obviously than

any of his predecessors had done. The reader felt that this was the natural and most interesting side from which to approach it.

The present edition has been re-written, re-arranged and improved in many ways. The introductory section, dealing with anatomical and physiological matters, has been greatly shortened and many unnecessary details omitted. Similar changes are noticeable throughout the work, and there is much interesting new matter. The division on "Feeding" is, as in the former editions, extremely full, and has been well brought up to date in most particulars. It represents an immense amount of clinical and experimental work, and may be strongly recommended to those who wish to study the most recent views on this subject. All that relates to the "milk laboratories" with which Dr Rotch's name is so closely associated is very fully described. The chapters on premature infants and on the diseases of the stomach and bowels are also especially interesting. The book is beautifully illustrated and there is an excellent index.

Impressions of a Doctor in Khaki. By F. E. FREMANTLE, M.A. M.B., B.Ch. (Oxon.). London: John Murray. 1901.

THE author of this book is a young man who, after being at an English Public School, and Oxford, studied at Guy's Hospital, London. In 1897 he became an M.R.C.S. England, and in 1899 went to South Africa as a Civil Surgeon. Stationed at first at Wynberg he criticised not only the whole hospital system but his seniors in charge. He was sent home, but had apparently sufficient influence to retain his position as a Civil Surgeon and returned to South Africa. He was sent up country and saw much interesting work. In the form of a diary he relates his experiences, garnished by criticisms, often in the worst possible taste, upon everyone and everything.

The book should not have been published, and probably after a few years of further experience even Mr Fremantle will regret having written much that it contains.

Heath's Practical Anatomy — A Manual of Dissections. Edited by J. ERNEST LANE, F.R.C.S. Ninth edition. Pp. 696. London: J. & A. Churchill. 1902. Price 12s. 6d.

THAT this work has now reached a ninth edition is proof of its popularity and usefulness as a guide to the student in the anatomy rooms. The conciseness and accuracy with which the main anatomical facts are stated render it valuable also as a work of reference to the busy practitioner, and, to a less degree, to the surgeon. But one cannot help regretting that

the surgical references have been omitted, as they directed the attention of the student to many points in anatomy, a knowledge of which would prove useful to him in his later work as a practitioner, and which are best understood and appreciated whilst the cadaver is before him.

In a work such as this the illustrations and diagrams are of great practical value, and should be accurate and clear in detail. Unfortunately, many of the illustrations are so small that the detail is difficult to follow. It would be an advantage and improvement to replace these by larger and clearer illustrations, so as to enable the student to quickly grasp the main facts, and to carry with him a mental photograph of the details. The accuracy of several of the diagrams is also doubtful; as, for example, Figs. 135 and 136, where the pylorus is placed considerably above the site generally ascribed to it. The present edition, is, however, an improvement on the last, and it should therefore still maintain its popularity as a student's manual.

The Treatment of Injuries. By WHARTON P. HOOD, M.D., St Andrews, M.R.C.S., L.S.A. Pp. 182. London: Macmillan & Co. 1902.

DR WHARTON HOOD describes under the above title the various methods which he adopts in the treatment of recent and old joint injuries, ruptures of muscle, and fractures; the last chapter is devoted to muscular exercises.

Friction and active movement are the essential factors employed in all cases. Friction is used to dispel local œdema and blood stasis, assisted in recent cases by the application of strips of adhesive plaster lightly encircling the injured part. Active movement is used not only to keep the muscles in proper tone and so prevent stiffness, but also to assist the return of blood from the injured part by compression of the veins. Passive movement is condemned, and pain is to be entirely disregarded.

In the treatment of old joint injuries with adhesions, the administration of A.C.E. or chloroform, not nitrous oxide, is recommended to enable the breaking down to be carried out; subsequently, immediate active movements and exercises are to be employed.

With reference to recent fractures, Dr Hood says: "As a rule splints should not be applied during the first two or three days"—rest in bed, arrangement of pillows or sandbags to secure steadiness of the limb, being sufficient; while the next principle of treatment, "perhaps the most essential one," is the removal of local swelling and blood stasis by steady, uniform,

gentle movement of stroking or squeezing from below upwards, beginning on the proximal side of the injury. Plaster strips are also employed and renewed from time to time as they loosen with the disappearance of swelling. Active movements are begun by the patient, as a rule, in a week to a fortnight.

Individual fractures are considered in a somewhat general fashion, and the subject of fracture involving the elbow joint, which naturally a surgeon will look to with interest, is disappointing in the extreme, when one considers what a large number of these cases must have come under the notice of Dr Hood.

The book is well printed, interesting, suggestive, and will well repay reading, though there is much that cannot be called convincing. Dr Hood, in his busy and engrossing practice, is apt to forget that in the last few years much accurate pathological work has been accomplished, and that satisfactory clinical results have been attained by others.

An Experimental and Clinical Research into Certain Problems relating to Surgical Operations. By GEORGE W. CRILE, A.M., M.D., Ph.D. Philadelphia: J. B. Lippincott Co. 1901.

THIS publication comprises, in book form, the prize essay for which the author was awarded the Alvavenga Prize for 1901 by the College of Physicians and Surgeons, Philadelphia.

The investigations consist in an experimental and clinical enquiry into: (1) the effect of severing and mechanically irritating the pneumogastric nerves; (2) the effect of intravenous infusion of saline solution; (3) the action of cocain and eucain; (4) the effect of temporary closure of one or both of the common carotid arteries. The conclusions arrived at may be summarised as follows:—

(1) Division of both vagi, owing to their cardio-inhibitory action being cut off, caused rise of blood pressure, increase in frequency and diminution in amplitude of the heart's contraction; also, decrease in frequency of respiration, completely counterbalanced, however, by a great increase in amplitude. Severance of one vagus caused practically no effect. Mechanical stimulation occasionally resulted in inhibitory symptoms, but the heart was never altogether inhibited.

(2) Infusion of saline is valueless where "shock" is due to a vasomotor breakdown; for blood pressure can then never be raised, owing to the absence of vasomotor peripheral resistance and the consequent escape of fluid into the cavities and tissues

of the body. Infusion in shock is of value only in proportion to the integrity of the vasomotor mechanism.

(3) Injection of cocain and eucain into a nerve does not leave even microscopical damage, but causes a temporary physiological "block" equivalent to section of the nerve. Hence the afferent impulses, which pass during even the deepest general anæsthesia, and cause "shock," are arrested. The injection also prevents reflex inhibition in operations involving the nerves of the larynx and pharynx. Painless amputations at the shoulder and elsewhere are recorded after local anæsthesia. Injections into the spinal cord leave slight histological changes; while subarachnoid injections cannot be controlled, and are therefore not recommended.

(4) The temporary clamping of one or both common carotids the author proves to be safe, if aseptically performed; the procedure is valuable in extensive operations on the head and neck. The injection of atropin (grain $\frac{1}{100}$) is advised with the object of counteracting inhibitory effects produced by handling the vagi.

The literature bearing upon the investigations is well reviewed. Details are also given of clinical cases which go to confirm the work done in the laboratory. The essay is well written, and is worthy of careful study, the more so since it deals with problems which are of real importance to the operating surgeon.

A Manual of Surgical Treatment. Part VI. Section 1. By W. Watson Cheyne, C.B., F.R.C.S., F.R.S., Professor of Surgery, King's College, London; Surgeon to King's College Hospital; and F. F. Burghard, M.D. and M.S. (Lond.), F.R.C.S., Surgeon to King's College Hospital. Pp. 479, with 124 illustrations. London: Longmans, Green & Co. Price 18s.

The last part of this work has been divided into two sections in order that the authors may have sufficient space to finish an important subject, and to treat fully of a branch of surgery which has made rapid strides during recent years.

The present volume deals with the surgical affections of the tongue, the floor of mouth, the pharynx, the neck and œsophagus, along with the surgery of the stomach and intestines.

The remainder of abdominal surgery is to be relegated to a separate volume, section two, which will conclude the present work.

Diseases of the tongue are very fully dealt with, though we

miss any allusion to some of the rarer conditions affecting that organ, such as actinomycosis. Malignant disease of the tongue is very thoroughly discussed, and the operative interference for the relief of the primary disease and its secondary affections is extensively dealt with. We also note that the authors recommend, as a routine treatment prior to severe operations on the mouth and jaws, the injection of full doses of anti-streptococcal serum, a suggestion which in many cases may be of some value, but which we do not think will be universally adopted, and certainly should never take the place of thorough and frequent local cleansing of the part subsequent to operation.

We are glad to see that the subcutaneous operation for torticollis is strongly deprecated, and that the "open method" of operation is the only one described.

Operative interference in diseases of the lymphatic and thyroid glands are described very fully, and reference is made to Schleich's cocaine infiltration for local anæsthesia in thyroidectomy.

It is satisfactory to note that the operation of laparotomy *per se* is described from various points of view, and that the question of exploratory laparotomy is fully discussed. We are glad to note that the authors, in a book largely devoted to operative treatment, have seen fit to deprecate the tendency of many surgeons now-a-days to "employ an exploratory laparotomy to the exclusion of other methods of diagnosis." We must agree fully when they state that "exploration should only be employed as a diagnostic measure when other means of diagnosis fail."

A long chapter is devoted to the subject of gastric ulcer, and the operative treatment in acute and chronic cases is very fully described.

The chapter on injuries to the abdominal contents is thoroughly up-to-date.

Appendicitis and tuberculous peritonitis receive the full attention such important diseases deserve; we are inclined to think, however, that operative interference in the latter condition is rather more favourably spoken of than the subsequent history of many cases would seem to warrant.

The volume concludes with a very complete and up-to-date account of the treatment of hernia. As regards hernia in children we are glad to see that an early operation is, as a rule, recommended, though attention is directed towards certain cases in which it is advisable to wait till a later date. The various procedures recommended for the radical cure are given for the most part in the words of their respective originators. Very little reference is made to the relative value of the different operations.

The volume constitutes a very important and valuable contribution to surgical literature, and more than maintains the high standard which has been reached in the previous parts of the work.

The volume is well illustrated, the figures illustrating the operations on the gastro-intestinal tract being particularly helpful.

Rheumatism, Rheumatoid Arthritis and Subcutaneous Nodules. By C. O. HAWTHORNE, M.D., M.R.C.P., Assistant Physician to the Royal Hospital for Children and Women. Demy 8vo, pp. 53. London: J. & A. Churchill. Price 2s. 6d.

THIS small book deals with the old, vexed question as to the relationship between rheumatism and rheumatoid arthritis. It is more a careful review of literature and a well-arranged collection of clinical facts than an attempt to reach a confident conclusion, and, perhaps for that very reason, the author's contribution to a difficult subject is all the more suggestive and valuable.

The main aim of the writer is to collect and produce evidence that, "in cases that are beyond dispute cases of rheumatoid arthritis, there may and do appear fibrous tumours which are essentially the same as those affirmed to be characteristic and decisive results of rheumatic influence." Reference is made to such cases recorded in literature and careful notes are given of five personal cases. In one case (Case I.)—which was singularly free from any evidence of rheumatism—one of the subcutaneous tumours was excised and was found to consist of dense, fibrous tissue—identical with the structure of the "rheumatic nodule." With such evidence before us, there seems to be no reason to doubt that subcutaneous fibrous tumours do occur in certain cases of rheumatoid arthritis, histologically identical with those found in acute rheumatism. On clinical grounds, however, certain broad distinctions have been drawn. The special features of the rheumatic nodules are stated to be that they are small, painless, occurring before puberty, developing rapidly and very temporary in duration. On the other hand, the subcutaneous fibrous growths noted in rheumatoid arthritis have been of considerable size, have caused more or less pain, have occurred at or near the middle period of life, have been slow in development and of prolonged or permanent duration. Hawthorne brings forward evidence to show that these distinctions are not absolute, and that there are intermediate forms which link together the two extremes. He believes, therefore, that there is sufficient

evidence to show that this tumour formation is common to rheumatism and rheumatoid arthritis, and that this fact is important in considering the mutual relationship of the two conditions. From the fact, however, that subcutaneous fibrous nodules have been recorded in cases in which neither rheumatism nor rheumatoid arthritis could be diagnosed, he cannot admit the claim that these nodules are pathognomonic of rheumatism, and therefore the fact that they are also found in rheumatoid arthritis is no *proof* of the identity of the two conditions.

The case-records are interesting and well illustrated. Several supplementary notes are added on *Heberden's nodes*, etc., and one interesting and important point brought out is that the mere fact of the existence of muscular atrophies and exaggerated tendon reflexes in rheumatoid arthritis is no proof that the *articular conditions* are dependent on a spinal lesion.

Diseases of the Thyroid Gland: Part I. Myxœdema and Cretinism. By GEORGE R. MURRAY, M.D., F.R.C.P., Heath Professor of Comparative Pathology in the University of Durham, etc. 8vo, pp. 112. London: H. K. Lewis. 1900. Price 7s. 6d.

THE author of this memoir is so well known for his work in connection with the thyroid gland, and more especially as a pioneer in the use of thyroid extract for myxœdema, that it is almost needless to say that the work at present under review is a valuable one. The subjects considered are the structure and functions of the thyroid gland, and the two diseases, myxœdema and cretinism, which are due to loss of these functions.

The chapters dealing with myxœdema and cretinism are admirable: the description of these two conditions is clear, the illustrations good, and there are full directions—of great value to every practitioner of medicine—regarding the treatment of the diseases with thyroid extract. As regards the pathology of myxœdema, the author, of course, emphasises the fact that the disease is solely due to disease or removal of the thyroid gland, and the consequent failure of the supply of its internal secretion. The morbid anatomy, so far as the thyroid gland is concerned, is stated to be a general fibrosis wih atrophy of the secretory epithelium; but it is left an open question whether the atrophy or the fibrosis is primary, although the author inclines to the view that the atrophy is primary, and that the fibrosis is only a replacement fibrosis. Cretinism is used to denote "myxœdema arising in infancy or childhood before the age of fifteen."

The first chapter, dealing with the structure and functions of the thyroid gland, is generally good, but we think that a fuller

account of the work done on the composition of the thyroid secretion might have been expected—little more than one page is devoted to this. A very interesting account is given of the results of experimental removal of the thyroid gland in animals, and more especially of the author's experiments on monkeys. The early acute nervous symptoms seen in such experiments are, he thinks, due to removal of the parathyroids, which are so closely connected with the thyroid in the monkey and other animals that it is impossible to remove the thyroid without them. We scarcely think that there is sufficient *proof* of this view either in the results of other experimenters—not all quoted by Dr Murray—or in the series of five personal experiments described in some detail, where thyroid gland was given after thyroidectomy.

The whole work is written in a most interesting and readable manner.

Nothnagel's Encyclopedia of Practical Medicine. English edition. Diphtheria, Measles, Scarlatina, Rötheln. Pp. 572. Cloth. Philadelphia and London: W. B. Saunders & Co. 1902. 21s. net.

THIS volume maintains the high standard of those which preceded it. It differs from them, however, in so far that the monograph on Diphtheria, extending to 192 pages, is not the translation of the article in the German edition, owing to an arrangement with the author to publish it separately; but it has been written specially for this volume by William P. Northrup, M.D., of New York. This monograph is a very valuable contribution to the literature of the subject; in it the views of other authors and workers are discussed in the light of the author's own extensive clinical acquaintance with the disease. The recommendations for Prophylaxis are admirable; those regarding the protective inoculation of nurses do not err on the side of want of care, and probably do not apply to nurses in hospital wards for diphtheria after they have become acclimatised. At the top of page 97 a misprint occurs, "frequent" instead of "infrequent." In the treatment of diphtheria large doses of antitoxin are recommended, viz., for a patient under a year, 1500 to 2000 units; over a year, 2000 to 3000 units in ordinary cases; in severe cases larger doses, these to be repeated in twelve hours if symptoms are increasing, in eighteen to twenty-four hours if no improvement. The relation to broncho-pneumonia of blood inspired during tracheotomy is not noticed. In order to overcome the difficulty which is occasionally experienced on removal of the tube after tracheotomy in nervous children in

whom stenosis has not occurred, the author has apparently not tried the method of first removing the inner tube, and placing a short cork in the outer one, in order to accustom the child to breathe through the glottis.

The other articles are by Theodor von Jürgensen, M.D., who treats of the various questions relating to the diseases named in a very able, lucid and comprehensive manner. No reference is made to the cause and prognostic value of the colour of the rash in measles. The relation of tuberculosis to that disease is traced to two different kinds of infection, viz., from pre-existing tubercular glands in which bacilli had been quiescent, and from the implantation of bacilli from without on a weakened mucous membrane. In the treatment of this disease special importance is rightly attached to fresh air and light, specially combating the popular prejudice in favour of a dark room. The periods accepted as possible for incubation of the scarlatina poison, viz., "from less than a day to weeks in length," are not in accord with the views held in this country, where seven days is the accepted limit, and children are allowed to return to school after eight days if no symptoms are present. It seems extraordinary that the author should consider it not proven that certain families offer a specially fertile soil for this poison. A point of great importance is the duration of infection, and although precise and valuable instructions are given for disinfection after an attack, it would almost appear as if the author admitted that infection may be past before desquamation is completed. In this country we believe that, as a temperature below the boiling point is fatal to the scarlatinal poison, boiling such garments as may be boiled is sufficient disinfection; von Jürgensen advises not only boiling, but long exposure to the sun. It is most interesting to note in relation to return cases, that at the Hospital for Scarlet Fever and Diphtheria in New York there is no history, as far as known, of contagion from a discharged patient.

The least satisfactory chapters in the volume are those on Rötheln. This is probably due partly to the failure to recognise the very definite incubation period of measles, the longer incubation of Rötheln, and the fact that the latter disease does not protect from measles nor scarlatina. The consideration and diagnosis of septic rashes is fully considered under Scarlatina. The volume is of very great value for special reference, and is considerably enriched by numerous notes by Dr Stengel, the editor.

All Communications—including **BOOKS** *for* **REVIEW** *and* **EXCHANGE JOURNALS**—*are to be addressed to* THE EDITORS, 7 *Manor Place, Edinburgh.*

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PAGET—VIRCHOW—LEVRET AND THE PRICELESS POWER OF KNOWING A FOREIGN LANGUAGE

An Introductory Lecture

By Professor A. R. SIMPSON, M.D., D.Sc.

GENTLEMEN,—In my introductory lecture last session I quoted from the "Memoirs and Letters of Sir James Paget," then recently published, a sentence calculated to impress on the mind of the medical student the importance of acquainting himself with the subject of midwifery. It shows the necessity of being prepared for the emergencies of this line of practice on the part of every man who goes out into the world with a medical diploma, even though his tastes lead him to seek fame and fortune in other directions. Writing to his fiancée from Paris, where he spent three profitable months, young Paget said, "Our passage was perfectly without interest. You will not, I hope, think I am falling into the manners of the country if I mention, as the only thing remarkable that happened to me before reaching France, the fact of my being obliged to sully my chirurgical purity by ushering into the world a young sea-nymph—yes, I had actually to 'welcome to earth an ocean-child'—and both the mother and it were landed under my superintendence at Boulogne next morning 'likely to do well.'"

I return to that fascinating volume now, to encourage you to read it, and if possible to become stimulated to make yourselves masters of more than your mother-tongue, at least to gain a working knowledge of French or German. If you ask

me which of these two languages is to be preferred when only one can be attempted, I might find it difficult to-day to give advice. Five-and-twenty years ago I would have recommended German without any hesitation. I have often thought that Paris itself furnished an object-lesson in the danger that befalls a people who are content to be ignorant of any language but their own. Paget tells how in 1837 he saw and heard Roux and Lisfranc, Cloquet and Velpeau, Magendie, Andral, Broussais, Louis, Chomel, and many more. Some of these names are still luminous on the pages of medicine, and in the department of obstetrics in those years the whole world looked to Paris for illumination. But a quarter of a century later all that was changing. Louis Napoleon had made himself Emperor, and during the score of years when he was ruler and priests controlled the national education, the lights grew dimmer, and amid the gloom in which the Imperial reign came to its end Tarnier alone shines out as a great obstetrical authority. Not that there were no leaders of thought even then in France. It was not possible that at any epoch a highly intellectual race should fail to produce men of genius. But even their teachers of that time, when the world was supposed to watch the nod of the Man of Destiny, seemed to think that what was known in Paris was all that needed to be known, and what struck one in occasional visits to France was that never a professor or *confrère* of any degree conversed in English. It was the more striking, because in Germany almost everyone wanted to speak either English or French in preference to his native German. The only effort to speak English in those years that I can recall was on the part of a young doctor in Strasburg, one of Stoltz's assistants, who had heard me say to his chief that I was leaving in two days, probably expressing myself in the phrase, "*Je vais partir après-demain*," and when I bade him adieu he ventured so far as to say, "You go to part after morning?" The want to our French colleagues of the stimulus that comes from knowledge of what is being done elsewhere manifested itself very clearly to one who began to lecture as I did two-and-thirty years ago, just at the time when the French contributions to obstetrics had declined to their lowest in point both of number and value, and one had to look to Germany when one went abroad for guidance. But a

happy change for obstetrics took place after the Napoleonic Empire went crashing down before von Moltke's legions, as may be read in the lurid but thrilling pages of Emile Zola's *Débâcle*. For now the French obstetricians wakened up to learn German and English and Italian ; during the intervening thirty years various vigorous societies, obstetrical, gynecological and pediatric have been developed, publishing their regular bulletins ; such a number of journals have been carried on as makes it difficult for the most diligent reader to keep up with ; and the Paris of to-day can again boast of a group of men, such as Pinard and Budin and Bar, as Pozzi and Doyen and Terrier, as well as others whose names are worthy to stand beside the Dubois, Velpeaus and Cazeauz, the Lisfrancs and Ricords and Recamiers and Amussats, the Huguiers and Joberts of Sir James Paget's youth.

But listen to what Sir James himself says as to the value of learning German in his student days. He recalls some of the books he had studied, and winds up with "Bichat's *Anatomie Générale* and (best of all) Hildebrandt's *Anatomie*, and, as they came out, the parts of Müller's *Physiologie*.

"I say 'best of all,' not only for the value of the books themselves, but because they were the first in which I learned to read German—the first in which I began to acquire that priceless power.

"I must record my debt to those who guided me in this great good ; though it be in a too long parenthesis. I had an admirable friend, some years my senior in the school, Dr Johnstone, a Fellow of Caius, an excellent Classic, and Dr Hue's first favourite. . . . Johnstone had spoken of me to Dr Clarke, the excellent Professor of Anatomy at Cambridge, and Clarke had said, 'Tell him, whatever he does, to learn German.' So I set to work, and with a dictionary and the two books he recommended, Hildebrandt and Müller, read some every day. I cannot overstate the advantage I thus gained, not only in knowledge but in reputation. Among the medical officers and teachers in the school at that time, Lawrence and Burrows alone knew German ; among the students, I think that none but Johnstone could read it, and he was scarcely more skilful in it than myself. It would be hard nowadays for a student to get such a 'swing' as I then did by being able

to talk out of Johannes Müller. I could tell Stanley things which he could tell in his lectures as one might now tell the latest and rarest telegraphic messages from some distant field of great research ; and I am never likely to forget the being asked by Marshall Hall and Kiernan to call on them that I might translate to them what Müller had just published on the 'Reflex Function' and on the Structure of the Liver. I can half pity the students of the present day for whom there is no such easy or agreeable way to distinction."

But if there be not that distinction in store for him, at any rate every student or young graduate who masters a foreign tongue will find that he has enormously widened his mental horizon and gained a power of acquiring knowledge that Sir James has well pronounced to be "priceless." If in the pursuit of his studies he goes to the country or countries where he can make use of his linguistic acquirements he may moreover come under the spell of one of those master-minds whose influence becomes a life-long inspiration and whose friendship may be a life-long pleasure. It is with the hope that some—perhaps many—of you may be stirred up to follow Sir James Paget in this acquisition that I proceed to give you some memories of the seasons I spent at Berlin as a young graduate five-and-forty years ago. With that hope ; and also because I wish to fix your attention on the remarkable man whom I there learned to reverence as a master and to love as a friend.

You have read and heard much of the great pathologist whose long beneficent life came to a close last month. You have traced with interest how Rudolf Virchow got his medical education free in the Friedrich Wilhelm Institut under the expectation that he would give his service to the State as a military surgeon : how the talent he displayed in his work and the originality of his thesis led to his receiving instead an appointment as Pathologist in the Military Hospital : how in this fitting sphere his genius at once found scope for its development, and with his friend Reinhardt he started the *Archiv*, in which he wrote his name indelibly on the history of medicine, and which he continued to edit single-handed for some five and fifty years : how, sent by his government to investigate an outbreak of typhoid fever in Silesia, he produced

a work of classical importance, which, however, offended the authorities because it traced the trouble to official mal-administration : how his relations with the higher powers became more strained when in the political upheaval that overspread the Continent in 1847-48 he was found on the side of the Progressives : how Bavaria gave him welcome and set a Chair of Pathology for him in the University of Würzburg, which speedily became the greatest centre of attraction for students of pathology from other lands : how in 1856 he was recalled to his old city, where a Chair of Pathology was founded for him in the University and a Pathological Institute equipped in the grounds of the same Charité Hospital where he had first made his name known : how for forty-six years he conducted the work of that class and Institute, and continued yearly to promote the progress of scientific medicine, which he simply revolutionised by his establishment of the cellular pathology : how, moreover, he took part in the municipal affairs of the capital of his native land with the effect of modifying its health conditions, so that in a few years the mortality that was over 30 per 1000 was reduced to less than 20 : how he was sent into the Prussian Parliament to plead the people's cause, and came there into conflict with the great Chancellor, Bismarck, the man of blood and iron, who, unable to meet the arguments of this man of mind and spirit, tried to silence him by challenging him to fight a duel : how at last the Court that had always looked askance upon him was compelled to do him honour when his genius and his patriotic fervour led him to organise an ambulance train that did noble service for the wounded in the Franco-German war : how in addition to his renown in medicine he became an authority not only in matters of sociology, but in anthropology and archæology : how Universities and learned Societies of all lands vied with each other in doing him honour : how the whole medical world gathered round him last October with reverence and affection to congratulate him on the attainment of his eightieth birthday : and how the universal sorrow evoked by his death on the 5th of September told of the general consciousness that not Germany only, but the world, had lost one of its great men.

I had the privilege of studying under him in the year after his return from Würzburg to Berlin, in the summer session of

1857. The Bavarian University, which had had the good fortune to enjoy his services for seven years, had attracted a group of foreign graduates and advanced students of medicine, and some of these had now followed Virchow to Berlin. I found, among others, Dr Wilson Fox, Dr George Scott, Dr Alexander Cowan, Dr Richard Brown, who had already graduated, and Messrs James Whiteford and James Maxwell, who were gathering material for their graduation theses. Some of us might have other courses to follow besides those of pathology. I myself, *e.g.* attended also the cliniques of Professor Busch in the Maternity; and at the instigation of Dr Brown, who was working with von Graefe, I attended for three months the Policlinic of the great ophthalmologist. Some were interested in the surgery of Langenbeck, or the auscultation classes of Traube, and went at a time to hear Johannes Müller, the veteran physiologist, who had offered to give up the pathological section of his course that Virchow might have a Chair beside him; but our uniting centre was the Pathological Institute. We were all constant in our attendance at 8 A.M. on the microscopic demonstrations of the man whom Dr Scott, the humorist of the group, led us to speak of among ourselves as "The divinity," or, for short, "The div."

Some of us returned to work with him the following winter session, and found among other fellow-students, Dr Alexander Dickson, Dr Chance, who translated the "Cellular Pathology," and a man whom Scott dubbed "Proud and happy," because whenever he was introduced to anyone he always greeted them with the same formula, "I am proud and happy to make your acquaintance."

We attended not only the morning demonstration, but a forenoon lecture, and watched the carrying-out of the post-mortem examinations that went on almost daily. These were made for the most part by Virchow himself, and occasionally by his assistant, Dr Grohe, afterwards Professor of Pathology in Greifswald. I was alone with Grohe one forenoon when he had made a section, and was about to sew up the cadaver, till I asked him if some white spots in the pectoral muscle of which he had taken no note were trichinæ, for I had heard of the trichina from Goodsir, but had never seen an infested muscle.

From observations on that cadaver, Virchow began the series of researches which led to his publication, two years later, of his important work on Trichiniasis.

For the first time, some of us began to appreciate the value of the association of a chemical laboratory with a pathological institute, when under the guidance of Dr Hoppe-Seiler, who was then in charge of Virchow's chemical laboratory, we were able to carry out analyses in the various directions that interested us. I think that next to our reverence for Virchow was our admiration of Hoppe, as he was then named, whose chemical knowledge was a constant astonishment to us, for there was no problem we ever brought him that he was unable to solve.

Under the stimulus of the teaching we enjoyed at the hands of Virchow, Grohe and Hoppe, we formed an English Pathological Society in Berlin. The assistants came regularly to our meeting and contributed to its transactions, the German language being allowed as well as English. On one occasion, at least, "The divinity" himself came and read us a paper on "Coal Miners' Lung." He had been desirous to investigate the subject, so I had taken over with me some specimens from Professor Goodsir, and the result of his observations, which he communicated to our Society, was published afterwards in the *Edinburgh Monthly Journal.* The communications of Wilson Fox and others also appeared later in various forms. At the close of the session we gratified Virchow by investing the funds of the Society in the few volumes of the "Transactions of the Pathological Society of London," and presenting them to the Institute. I bequeathed my interest in it to Sir Thomas Grainger Stewart, who with Professor M'Call Anderson and others kept it going the following winter.

I do not know how far it is a common custom for the learned societies of Germany to meet in places where the scientific discussion can be followed by a convivial meal, but I remember attending an occasional meeting of the Obstetrical Society of Berlin. It had been founded by Carl Meyer, whose vaginal ring pessary and milk-glass speculum keep his name fresh in German gynecology. Virchow's wife was his daughter, and, apart from his relation to the President of the Society, his interest in obstetrical pathology led him sometimes to attend its meetings and contribute to its transactions.

I have no special remembrance of Virchow at any of these suppers, but I have a very vivid remembrance of his presence at a convivial gathering of our English Pathological Society. It came about in this way. My cousin was at school in Elberfeld that winter, and came to spend his Christmas holiday with me at Berlin. A box had been sent to us from Queen Street, bringing a large goose, a lot of shortbread and other good things, more than was good for two. I suppose it may have been my turn to receive the Pathological Society in my modest room up three flights of stairs in the Marienstrasse, with its bed in one corner and its stove in another. At all events, the Society met there one evening in that Christmas week, various members contributing what might be deemed further necessary for good cheer: Fox bringing a bottle of claret, Scott of hock, and so on. Hoppe had suggested that each member should provide also a small Christmas present, to be distributed by lots. Virchow had not been told of this, because it was part of Hoppe's proposal that when the lots were drawn one of the company should draw a blank. The blank fell to Hoppe himself. Into Virchow's hand came not a picture or knife, or other visible object, but a parcel neatly done up in brown paper and tied with a string. We were all naturally anxious to know what was in the parcel, which he proceeded to undo. The string untied and the brown paper unwrapped, it was still seen to be a parcel wrapped in blue and fixed with sealing-wax. This covering removed, a yellow paper parcel was still in his hands, and as he quietly undid wrapping after wrapping of the diminishing packet, he stopped once and looked up amused at the growing excitement and said, "You can see, at anyrate, what a patient investigator I am." In the interior was a pasteboard box, with a figure of Julia Pastrana, a hairy Mexican woman who was then on exhibition in the Prussian capital. It was the more appropriate that it fell to Virchow, as he had had the opportunity of examining the freak, for there was never a monstrosity of any kind that did not come under his scrutiny. Pathological specimens of every sort used to be submitted to his investigation, and I never see a *paté de foie gras* without thinking of a supper at his house, where there was a liberal distribution of that delicacy, because a quantity of *foie gras*

d'oie had been sent him from Strasburg that he might pronounce upon the pathology of the goose liver. That by the way, for I'm not done yet with our Pathological Society's supper. When Scott and others had sung songs, Virchow also, to our great delight, sang a song of a knight who rode over the Rhine. As I remember it, it was somewhat in the metre of "Young Lochinvar," and its drift was the same as in Sir Walter Scott's song, for in the end the hero re-crossed the Rhine carrying with him a lady not unwillingly snatched from her father's halls.

You will understand the delight with which we pursued our studies under a master so gifted and so genial. But I once saw him angry. I have not seen it stated that in addition to the work of the Pathological Institute he had charge in the Charité of some wards, where he kept up his acquaintance with the practice of medicine, and could observe the progress of disease in the living. He had no teaching function in connection with these wards, and for the most part paid his visits alone. He took me with him sometimes, and on one occasion, when he came to a particular patient, he found the man worse than he anticipated, and, on inquiry, found that the orderly in attendance had failed to administer medicine prescribed the day before. When Virchow fairly took in the situation, I saw, as he turned to the culprit, that a thunder-cloud had gathered on the usually smooth and placid brow; the eyes that were wont to look like deep pools of thought, or that at times beamed over the gold-rimmed spectacles with a humorous twinkle, now shot out lightning glances of fury, while he showed the man his wickedness in endangering his patient's life with words that pierced him through like swords. The tempest did not last. But I have an impression that it did its work, and that quailing orderly could not to his dying day forget the lesson he was taught.

In those days, though he knew enough of English to keep himself abreast of British pathology, he did not easily converse in it. When Professor Spence came to visit him, the two made the most of their interview through their mutual knowledge of French, when they did not make use of one or other of us as their interpreters. Note, by the way, that this is one of the advantages of learning French in preference to German,

that it is more frequently serviceable as a medium of communication with our foreign *confrères*. But Virchow went on increasing his mastery of English till, in his later visits to London, he did not shrink from addressing English audiences in their own tongue.

Some of his old students had the opportunity of repairing their friendship with him, and others got to know him here for the first time when, in April 1884, he came among the illustrious guests who gathered to celebrate the tercentenary of the foundation of our university. The remembrance of an afternoon when Robert Browning and he met over a cup of tea and had a long talk about Paracelsus, reminds me that one of the great charms of Virchow's teaching was the light he was able to throw on many problems from his wonderful knowledge of all that was best in the history of medicine from the writings of Hippocrates to those of Goodsir, and I had more than once heard him make reference in his lectures to the work of Theophrastus Bombastes Paracelsus von Hohenheim, as he called that great disturber of time-honoured dogmas. I have seen it stated in a daily paper that he was an atheist and infidel lecturer. You will not readily believe that, if you but read the address he delivered to your predecessors in the great meeting arranged by the Students' Representative Council, where a group of the most distinguished of our guests were invited to speak to students, and his counsel was to build life and practice not on theories but on facts. No, the man who stemmed the tide when a wave of crude materialistic Darwinism was overspreading his fatherland, and Häckel had gone the length of demanding that the religious instruction of the common schools should be discarded and built anew on the foundation of the descent theory, was no atheist. One can well suppose he may have seemed to be such to timid souls who heard him denounce what he regarded as superstitions, or sought to break the barriers that sticklers for creeds and ecclesiastical organisations set up against the progress of education and enlightenment of the people. But he could, on the other hand, expose what he described as "the frightful danger, and even the foolhardiness, inherent in the attempt to lay the foundations of general school instruction on an arbitrary system that posed as science, when

it was only built on bare possibilities." No, he was no atheist who took an intelligent and sympathetic part in our family worship, and who enquired, when one morning the chorus of our hymn sang of "Beulah Land," what this "Beulah Land" might be. It was explained to him how, in the most widely read of English books, Bunyan pictured his pilgrims as resting for a time after their toilsome journey in a region whence they could easily descry their heavenly home, and he carried away with him a copy of the great English classic. On the Sabbath morning, when we had sung the well-known hymn, beginning—

> Blest morning whose first dawning rays
> Beheld the Son of God
> Arise triumphant from the grave,
> And leave His dark abode,

I asked him, the man who had made so many hundreds upon hundreds of dissections, if he had any difficulty in believing in the Resurrection, and his reply was, "No, why should I?" On the morning of the last day of his stay with us, we had been reading in course the parable of the talents. It had fallen to his turn to read one of the verses in which the faithful servant was commended, and it was natural to pray that one who had so often heard the applause of his fellowmen might, when all other voices grew silent, hear the voice of the Highest say to him, "Well done, good and faithful servant." It was something other than the politeness of an agnostic that made him take the petitioner's hand in both of his and thank him, when they had risen from their knees.

I question if any of the other great men who that week visited Edinburgh carried back with them aught that was to be of immediate benefit to their own fellow-countrymen. Virchow did. He was then deep in the reform of the sanitation of Berlin, and he stayed a day after the others had left that he might go over the Craigentinny meadows with our Burgh Engineer to study the system of irrigation employed in the disposal of the city sewage. When he went home he published an account of it for the enlightenment of his municipality.

Two years later, when I was in Cairo with my wife and son, we had the joyful surprise of finding as we sat down to dinner in Shepherd's Hotel that Virchow and his friend Schliemann were seated exactly on the opposite side of the

table. They were on their way home from a winter's expedition up the Nile exploring the antiquities of Egypt. We went to the Boulak Museum together, specially interested to see the then recently discovered mummy of the Pharaoh of the Oppression. I was more than surprised when he remarked that the face had a resemblance to that of the elder Pitt. It was an unexpected glimpse into the store of observations packed away in the convolutions of that wonderful brain to hear him thus refer to the likeness of a foreign statesman. My wife expressed a doubt as to whether the mummy could be that of the real Pharaoh, seeing he was lost in the Red Sea on the night of the Exodus. "If you look the Bible again," said Virchow, "you will find it does not say that Pharaoh himself was drowned, but only his horses and army."

The other times I met him were mostly at International Medical Congresses, where he was the cynosure of every eye and crowds surged round him in the public gatherings. He had a keen impression of the value and importance of these international re-unions, and was to be seen in London and Paris, in Copenhagen, Rome and Moscow, as well as in his own Berlin, where he naturally was acclaimed as President.

International Congresses have, to my mind, apart from all their worth as a means of promoting scientific progress, an important function to fulfil in the way of tending to dispel international prejudices and to smooth down international asperities. Our beneficent friend, Mr Andrew Carnegie, was telling his fellow-citizens of Perth the other day how the men of a coming age will look back on us with all our civilisation as something of barbarians who could not settle international disputes without the sacrifice of many lives in battle instead of submitting our respective claims to an arbitration tribunal. The Royal College of Physicians of Edinburgh takes its motto from a line in one of Ovid's letters which tells how the faithful study of the liberal arts

Emollit mores nec sinit esse feros.

And there can be no better opportunity for the action of this mollifying influence than where the men of different nationalities who are engaged in the same pursuits meet together for

serious discussion and friendly intercourse. Four weeks ago I had the satisfaction of attending such a Congress of Obstetricians and Gynecologists in Rome. To meet many old friends and make fresh acquaintances hailing from America and Canada, Russia, Roumania and Greece, Germany, Austria, Holland, Belgium, France, Spain and Italy itself was a joy only marred because there was but one other British Obstetrician there—Professor Sinclair of Manchester. My friend expressed to me great indignation that England seemed to be ignored in the arrangements made for replies to the Addresses of Welcome offered to the Congress on the part of the Minister of Education, who represented the King of Italy, and the Vice-Syndic who represented the Senatus Populusque Romanus, as there was only Dr Engelmann of Boston, U.S.A., and he a German by birth, to speak for the Anglo-Saxon race. I told him it was England's own fault, as there were no Englishmen there, only our two selves, both of us "unspeakable Scots." Britain was not left out in the cold, however, altogether. I had observed in looking at the printed constitution of the Conference that there was a special list of members who had come as delegates from various Institutions and intimated to the Secretary, Professor Pestalozza, that when he came to publish the Transactions he might set me down as Delegate from the Obstetrical Society of Edinburgh. When the last of the appointed delegates was making his reply, Pestalozza came and asked if I would also speak as representative of the oldest existing Obstetrical Society. I had been sharing something of my friend Sinclair's feeling, and was rather glad to find that I had not in vain put on evening dress in the forenoon according to continental custom for such occasions, as I mounted the rostrum with my gibus in my hand and said something to His Excellency and the audience that cannot have been altogether displeasing, because one of the newspapers reported next morning that the last orator was the English representative, Professor Simpson, "who closed with a splendid hymn to the grandeur of Italy."

There was much in the Congress that was interesting. But what I count my best spoil brought from that Italian trip was already gathered in the train between Paris and Rome, when I had the pleasure of travelling in the same com-

partment of a sleeping car with Professor Pinard. Two years ago I had expressed in an address on the "Evolution of the Midwifery Forceps" the hope that some of our French colleagues would one day write a life of their great obstetrician Levret, worthy to compare with the "Life of Smellie," by Professor Glaister. Now Pinard told me that in 1866 Tarnier had given a lecture on the subject: but what was more important, that some interesting facts concerning Levret had recently come to light, and that in the forthcoming number of the *Annales de Gynecologie*, Henri Varnier would publish an article about it. Levret and Smellie were the two obstetricians who in the eighteenth century did most to set their great department of medicine on the true lines of progress. They were contemporaries and friendly rivals. One likes Tarnier all the more that he claims for his countryman the pre-eminence. The introduction of Levret's modification of the forceps, he declares, "marks a memorable date in the annals of French surgery. This would not have been able to maintain its supremacy in the art of midwifery if it had had to oppose to Deventer, *e.g.* only the famous accoucheur De la Motte, a man of initiative and a penetrating observer, but devoid of knowledge; whilst with Levret all comparison became impossible. Smellie himself was no rival to this man, of whom it was counted an honour everywhere to have been one of his pupils." We may content ourselves with the impartial verdict which you will find quoted in the article on "Obstetrics" in the supplement to the "Encyclopædia Britannica" from the famous obstetrician of Bonn, Professor Kilian, who calls Levret "one of the greatest masters in the department that ever lived"; and says of Smellie, "inferior to Levret in nothing, he excels him in much."

There has been singularly little known of Levret outside his published works except the dates of his birth and death and of some of his appointments, beyond the fact that a great financier, Samuel Bernard, whom he had attended in his last illness, left him fortune enough to give him a degree of independence. Tarnier, searching through the records of the Academy of Surgery, was able to point out some of his characteristics as they revealed themselves in his reports on obstetrical papers sent in to the Academy and submitted to

Levret's judgment, but in the end has to regret the disappearance of the *éloge* pronounced upon him after his death by his friend Antoine Louis, which is believed to have set forth his history and character by one who was his intimate associate for long years. Varnier is not without hope that this manuscript may yet see the light. Meantime his own article throws an interesting light on Levret's last days.

He had reached the age of sixty-seven, had for two years been withdrawing from his active life of thirty years lecturing and writing, when suddenly in 1770 and 1771 he re-entered the arena and in rapid succession published a series of fifteen articles in the journal of his friend Roux. At the same time the journal published every three months an advertisement of his lectures thus :—

"COURSE OF MIDWIFERY.

"M. Levret, Accoucheur of the Dauphiness, &c., &c., will open his fourth course of Midwifery on Tuesday, 20th October 1770, at nine o'clock in the morning precisely. Those who desire to follow it are requested to enrol at his address, Rue de Fossés-Montmartre."

After the autumn of 1771 these announcements disappear, and his publications become fewer. There are two papers in 1772, three in 1773, and thereafter silence.

If we look at him two years before, in 1768, we see him, five years after Smellie's death, undisputed master of the obstetric world, with some stars of the third order around him—Antoine Petit, Péan, Delcurye, Gervais. Baudelocque has come fresh from his province, but is only twenty-two, and some years must pass before he can enter on the orbit of Levret. The master is gradually narrowing his circle of energy, and is beginning to seek well-earned repose, when suddenly there landed in Paris, Rue de la Harpe, at the gate of the amphitheatre of Saint-Cosme and of the Church of Saint-Severin, a young Gascon, thirty-one years of age, delicate and having a cough, but of whom the students of the South have already been saying great and marvellous things. All his luggage is a diploma, scarcely a year old, of the Doctorate of Surgery of Montpellier, and some papers on labour, the fruit of his reading, of his reflections, and of his commencing practice—for the Faculty of Montpellier taught no midwifery. He came from

Calhac, in the diocese of Cahors, to make conquest of Paris, and his name was Solayrès (de Renhac).

Solayrès had two strong trumps in his game. His brother was vicar of the largest University Parish, St Severin, and he had brought from Montpellier, in his pocket, a letter of recommendation from his master, Serres, to the "Head of French Surgery," Messire Germain Pichault de la Martinière, councillor and first surgeon to the King, and already for twenty years perpetual President of the Royal Academy of Surgery. Solayrès speedily sprang into fame. La Martinière had him at once designated as Demonstrator in the Practical School of Anatomy and Operative Surgery that he had added to the Schools of Surgery. To entitle Solayrès to hold the office, however, he had first to write a Thesis, and his patron was to pay all the expenses of his habilitation. Meantime he opened a private course of Midwifery, and it was when Levret saw the unprecedented success of this newcomer that he again bestirred himself to work once more among his students. For two years he continued to lecture and write, when he found himself again free to retire and hand over his museum and his lectures to his son-in-law Destremeau. The leisure came to him because Solayrès, though he had printed and sent in his Thesis, found himself too ill to appear and sustain it, and was carried off by laryngeal phthisis in April 1772.

Thereafter Levret still attended some members of the royal family in their confinements, and to the end, says Varnier, seems to have retained all his powers and faculties. His will, signed on 17th January 1780, five days before his death, has just been discovered, and Varnier reproduces it in full. He commends his soul to God, and prays for mercy through the infinite merits of our Lord Jesus Christ; leaves to his widow, whom he appoints as executrix, to see to his funeral, recommending the greatest Christian simplicity; leaves her to judge also what prayers should be said for the repose of his soul, and what alms should be given to the poor. He leaves 1000 livres to his wife's maid, for a recompense for the care they had enjoyed at her hand, and takes care that his heirs charge nothing for board and lodging to a lawyer who had come at his request to stay with him. His goods are divided equally between his son and daughter, whom he recommends always

to treat their mother with the greatest deference, respect and affection. And though it be contrary to law for husbands to make dispositions in favour of their wives, he expects that it will be quite agreeable to his children that he leave to his dear wife the ring with four white diamonds presented to him by the Countess d'Artois.

The obituary notice of him in the *Journal de Paris* concludes with some sentences which reveal their authorship,' for they tell of the high regard which Levret entertained for M. Destremeau. "He demitted to him," it says, "his public teaching of midwifery, making over to him the precious contents of his museum. He did not hesitate to take him as his partner in practice: he did more, he took him for his son-in-law, thus giving M. Destremeau a double title to his succession. The public also has ratified this choice, and in no circumstance has it refused to the son-in-law the confidence it reposed in the father-in-law, and justly so."

"Posterity," laughs Varnier, "has not followed the public of 1780: it knows nothing of Destremeau."

Relationship with a great man does not ensure greatness. But it tends to the development of the best in anyone to make acquaintance with the great of other generations, and it is because I covet for Edinburgh graduates a wide outlook on what belongs to the history of medicine in the past and on what is being done everywhere for its progress in the present, that I have sought to interest you to-day in three such men as Paget and Virchow and Levret, and to indicate some of the benefits accruing to one who takes the trouble to acquaint himself with a foreign tongue. Medicine has not moved on in its age-long progress in a straight line, nor does it move in a circle, as has sometimes been alleged. It never returns upon itself, but moves onward in a spiral. Reviewing its history is as when one climbs a tower, such as the famous Tower of Pisa, where Galileo made some of his epoch-making observations. At one stage of the ascent you look toward the sea. As you wind upwards, you look from another side upon the mountains. Virchow could tell where the humoralists have advanced pathology, and where the solidists. Even in this microbial era into which you have been born you may observe that whilst at first attention was given to what the microscope could reveal

of cocci or bacilli and the cells or tissues that were invaded, their respective secretions now hold the field, and chemistry is called in to pronounce upon toxins and antitoxins that we may better understand the contest between invaders and defenders. It is instructive to a degree to hear a brilliant worker in this domain like Professor Welch of Baltimore in his Huxley lecture on "Immunity," published no longer ago than Saturday last, remarking that John Hunter "interested himself greatly in certain phenomena which, interpreted in the light of our present knowledge, are clear anticipations of certain recent findings."

If any of you are inspired with the ambition to take a share in the promotion of medical science, you will do well to acquaint yourself, like Rudolf Virchow, with the work of those who have gone before you. You will do even better to acquire what you have heard Sir James Paget call "that priceless power" of keeping yourself abreast of what is being done by your fellow-workers in other lands.

X-RAYS AS A DIAGNOSTIC AGENT IN PHTHISIS PULMONALIS[1]

By F. GARDINER, M.D., C.M., B.Sc.

THE use of X-rays in the diagnosis of pulmonary tuberculosis has now spread to many lands, but as yet comparatively little has been done in Scotland. The following pages give a general survey of the results I have obtained and the details of the methods I have found useful during an experience extending now over two years.

An ordinary X-ray outfit with a coil giving a 10 to 14 inch spark, with a motor-interruptor, a large screen 15 by 12 inches and photographic plates of the same size, are all that is required. The parts in a modern apparatus most liable to be faulty are the motor-interruptor and the vacuum-tube. The Mackenzie-Davidson interruptor gives excellent results; and of tubes, circumstances led me to use first a "Voltohm" and later a "Hirschmann"; but, more recently, a "Cox-Record" has given me most satisfaction. The cases described here were

[1] An abstract of the Thesis to which the University of Edinburgh awarded the Gunning Prize, July 1902.

PHYSICAL EXAMINATION. SCREEN EXAMINATION.

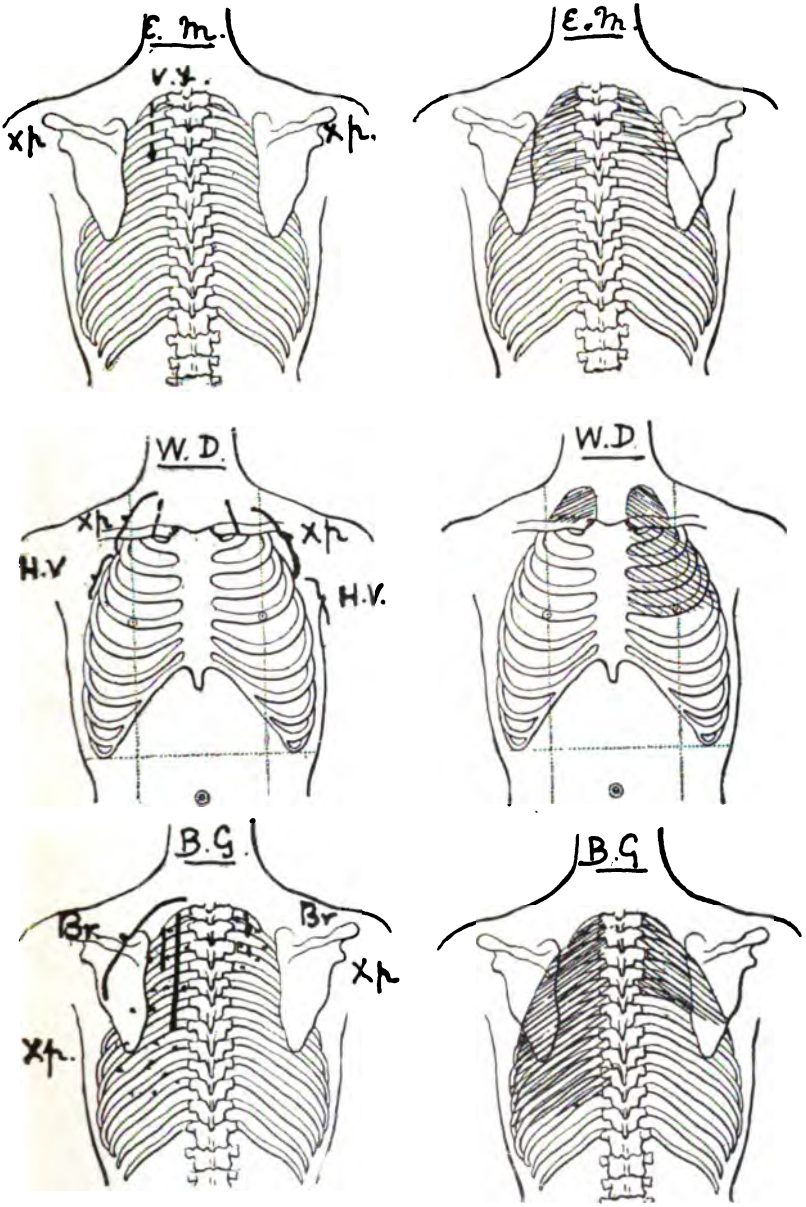

PLATE IV.—TO ILLUSTRATE DR GARDINER'S PAPER.

NOTE.—Vertical Line indicates Dulness on percussion.
Dotted Line indicates Impaired Note on percussion.
Dots indicate Crepitations.
Br. indicates Bronchial Breathing.
Xp. indicates Prolonged Expiration.
H.V. indicates Harsh Vesicular Breathing.
V.F. indicates Very Faint Breathing.

PLATE V.—TO ILLUSTRATE DR GARDINER'S PAPER.
NORMAL CHEST (Posterior Aspect).

PLATE VI.—TO ILLUSTRATE DR GARDINER'S PAPER.

CASE A. A. Photograph A (Posterior Aspect).

PLATE VII.—TO ILLUSTRATE DR GARDINER'S PAPER.
CASE A. A. Photograph B (Posterior Aspect).

PLATE VIII.—TO ILLUSTRATE DR GARDINER'S PAPER.
CASE D. S. (Anterior Aspect).

Emphysema.

Cavity.

Bronchi.

Tag.

PLATE IX.—TO ILLUSTRATE DR GARDINER'S PAPER.
POST-MORTEM LUNG.

drawn from patients attending the Victoria Dispensary, Edinburgh, and to Dr Philip and Dr Gulland I beg to tender my hearty thanks for this privilege, as also for the ready help and suggestion they gave me from time to time.

To Dr Dawson Turner I also express my gratitude for the facilities he allowed me in the X-Ray Department of the Royal Infirmary, where most of the work was done.

Fourteen cases only are given for the sake of illustration, but the conclusions are drawn from many more; while, for the sake of space, the results of the examinations are condensed, only the salient points being referred to.

Each case was first examined by ordinary methods and the details noted; afterwards the case was examined by X-ray screen and the facts charted. Accompanying are a few charts which show graphically the results of the two methods of examination, this plan being used to record every case.

In many instances photographs were also taken, but, for reasons to be given hereafter, this was not a general rule.

Screen Examination.

This had to be carried out with certain precautions to ensure uniformity of results.

The room was absolutely dark and at least five minutes were allowed to elapse before making even any mental notes, as it is only after a time that one's eyes get accustomed to the darkness, and in addition the tubes gradually improve after working for some minutes.

Beclèrc recommends remaining ten minutes in the room before starting observations. Within reasonable limits much better results are to be obtained with a poor apparatus and a lengthy observation than with a first class working coil and tube and hasty conclusions.

The patient, stripped to the waist, was examined first from the anterior and then from the posterior aspect, the tube being placed at various levels, and the reflector directly opposite the median line of the body, so that all parts were gone over *seriatim*.

For a comparison of both lungs from apex to base the tube was placed at the level of the fourth rib and the patient at about

eighteen inches distance from it; by this means the darker parts were thrown into greater relief.

Finer shades of opacity were best seen closer to the tube, and the use of a sheet of lead with a hole in it, to act as a diaphragm cutting off the oblique rays, was found useful at times. It is the oblique rays which cause distortion, and the same end is attained by removing the patient to some distance from the tube, only that there the light is not so strong.

Another necessary precaution was to remove as much as possible the shadows caused by the scapulæ, this being done by instructing the patient to hold his hands on his head and point his elbows anteriorly.

The various points examined for in routine screen examination were: (1) loss of translucency in any part of the lung; (2) alteration in the shape of the heart; (3) slope and movements of the ribs; (4) position and movement of the diaphragm. As a result of repeated examinations the average normal diaphragmatic movement in the adult was found to be $2\frac{5}{8}$ inches on the right side and $2\frac{7}{8}$ inches on the left side.

Photography.

Two positions were tried, first with the patient sitting, but latterly with the patient lying supine or prone on the plate and the arms extended laterally. The tube was accurately placed in the mid-line of the body at a distance of six to eighteen inches from the surface of the chest.

At first the shorter distance was used, but with better working tubes the distance has been increased with, apparently, better results.

One little detail was found of great service, viz., the use of a weight and plumb line to be certain that the centre of the reflector was directly over the spot required.

The duration of exposure had naturally to be varied according to the working state of the tube and the thickness of the chest-wall, the limits being $2\frac{1}{4}$ and 5 minutes.

Lumière plates, the fresher the better, were found to be much superior to other kinds, and they were developed with hydroquinone or pyrogallic acid.

Comparative Value of the Screen and Photographic Picture.

During the few minutes of exposure necessary in taking a photograph, the chest-wall, diaphragm and heart are continually moving, and consequently in the photograph the outlines are more blurred than when seen with the screen. For permanent records of the grosser lesions therefore the photograph may be useful, but for immediate and more accurate use the screen is preferable.

Practically all observers are agreed on this point; Dr Hugh Walsham of London being the only active dissentient.

In the near future we may hope that, with better apparatus, the exposures will be shortened to seconds, and then the results may be comparable to those obtained by screen examination.

(I have tried the Cadette X-ray paper, and, combined with an intensifying screen, have taken photographs in 35 seconds, during which time the patient was able to hold his breath.

The results, although showing the ribs, were not satisfactory, owing to the mottled print which an intensifying screen always produces, and the fact that the details were not well brought out.)

Photograph of Normal Chest. Plate V.

This shows the posterior aspect of the chest of a female, aged 23. The thorax is rather a narrow one, and the case was examined to see if any pulmonary tuberculosis were present, the physical examination revealing none. Note the clear outline of the ribs, and the fact that the apices are not so clear as the lower parts, this being due to the mass of muscular tissue in this region, and the smaller amount of lung substance.

CASE 1 (*see* CHART E. M.).

E. M., female, æt. 17, complaint bloodlessness. She had a slight cough, with thick dark sputum in which no tubercle bacilli were found. Larynx healthy. No hæmoptysis. No night-sweats.

Physical Examination of Chest.

Slight impairment of the percussion note over the left apex posteriorly down to the fourth rib, and faint breath sounds with

prolongation of the expiratory murmur at both apices were the only signs found.

Screen Examination.

Anteriorly.—Revealed slight loss of translucency at both apices, most marked on the left side, where it extended to the second rib, while on the right side it extended to the first rib.

Posteriorly.—Loss of translucency extended on the left side down to the fifth rib, and on the right side to the fourth.

The ribs on the left side sloped more acutely than those on the right side.

Diaphragmatic Movement.—1¼ inches on the left side, and 1 inch on the right side. A photograph taken corroborated this so far, showing loss of translucency on both sides posteriorly as far as the fourth rib.

The history of this case and the physical signs might have led one to diagnose early phthisis, but the X-rays gave one more decided grounds to go upon.

Particularly noteworthy is the marked diminution of the diaphragmatic movement.

CASE 2.

Flora S., æt. 17, complaint general weakness and loss of weight. This girl was obviously anæmic, but apart from dyspeptic symptoms she had no definite mischief. Physical examination of the chest revealed nothing.

Screen Examination.

Anteriorly.—Slight loss of translucency on the right side above the clavicle, and on the left side from apex to first interspace.

Posteriorly.—On the right side loss of translucency to the third rib, and on the left side to the second interspace, though not so marked.

Diaphragmatic Movement.—Right, 2 inches. Left, 2¼ inches.

The condition here was a very early one, but there were distinct indications given by X-rays, which ordinary physical examination failed to show.

CASE 3.

Joseph L., æt. 9, complained of severe cough lasting for four months. A sister died of tuberculosis nine months previously. This patient had been losing weight rapidly, and his digestive

functions were much impaired. In the sputum, which was scanty, I failed to find any tubercle bacilli.

Physical Examination of the Chest.

Anteriorly.—There was slight dulness at the right apex above the clavicle.

Posteriorly.—Slight dulness at the right apex down to the third rib, and extremely slight impairment of the percussion note on the left side above the scapula.

The breath sounds, which had no accompaniments, were almost bronchial in character at the right apex posteriorly, but elsewhere normal.

Screen Examination.

Anteriorly.—There was loss of translucency at the right apex down to the third rib.

Posteriorly.—There was loss of translucency extending to the fifth rib on the right side, and on the left side to the spine of the scapula.

Diaphragmatic Movement.—1¼ inches on each side, but on the right side the movement was of a jerky character.

CASE 4.

Thomas H., æt. 25, had suffered from cough for six months, and had been losing weight rapidly. Sputum contained tubercle bacilli.

Physical Examination of Chest.

Anteriorly.—On the right side, dulness on percussion above the clavicle. Expiratory murmur prolonged in this area and down to the second rib. On the left side, dulness on percussion from apex to the second rib, and prolongation of expiratory murmur in this area.

Posteriorly.—Dulness on the right side extended to the second rib, and over this area the breathing was bronchial. On the left side there was dulness on percussion down to the third interspace and impairment of the percussion note to about the next interspace. Bronchial breathing was heard to the second interspace.

In all the affected areas the breathing was faint.

Screen Examination.

Anteriorly.—There was loss of translucency on the right side to the first interspace and on the left side to the second rib.

Posteriorly.—On the right side loss of translucency to the third rib and on the left side to the fifth rib.

Diaphragmatic Movement.—Right side, 1 inch. Left, 1½ inch.

CASE 5 (*see* CHART W. D.).

William D., æt. 33, had suffered from a cough for three months. Sputum contained tubercle bacilli.

Physical Examination of Chest.

Anteriorly.—On the right side there was impairment of the percussion note, and on the left side dulness from apex to clavicle. Prolongation of the expiratory murmur was present on the right side above the clavicle, and on the left side to the fourth rib, with harsh vesicular breathing for one or two interspaces below these areas.

Posteriorly.—On the right side no impairment of the percussion note, but crepitations accompanied the breath sounds over the first three ribs. On the left side the note on percussion was impaired down to the fifth interspace. Crepitations were heard as low down as the fourth rib, and above the spine of the scapula the breathing was almost bronchial.

Screen Examination.

Anteriorly.—Loss of translucency on the right side above the clavicle and on the left side from apex to the fourth rib.

Posteriorly.—On the right side loss of translucency down to the fourth rib and on the left side to the seventh interspace.

Diaphragmatic Movement.—Left, ⅜ inch. Right, 1 inch.

CASE 6.

Gillon B., male, æt. 9, came complaining of persistent cough and great loss of weight. Suffered from tubercular knee four years previously. At present has tabes mesenterica. No sputum.

Physical Examination of Chest.

Anteriorly.—Dulness on percussion on the right side extended down to the second rib and on the left side to the first interspace. Hyper-resonance below these areas. Bronchial breathing was heard above both clavicles and rhonchi all over.

Posteriorly.—There was dulness on percussion on both sides above the spine of the scapula and bronchial breathing was heard there. Rhonchi present all over.

Screen Examination.

Anteriorly.—Loss of translucency on the right side down to the third interspace and on the left to the fourth rib was observed, being more marked on the right side.

Posteriorly.—The loss of translucency extended to about the sixth rib on each side, being greater above, and the right side again more affected.

Diaphragmatic Movement.—Very irregular in character, was only ½ inch on either side.

A photograph taken in 2 minutes 10 seconds showing the posterior aspect revealed a similar condition.

In this case the ordinary physical signs were obscured by the presence of rhonchi, and probably most clinical observers would be glad of the fuller knowledge obtained by X-rays in such a condition, which is by no means a rare one.

CASE 7.

Jessie R., æt. 10, very much under weight, complained of cough lasting for eighteen months. Sputum contained tubercle bacilli. There was a marked family history of phthisis, and in addition this patient was found to be suffering from glycosuria.

Physical Examination of Chest.

Revealed no dulness on percussion, but rhonchi and a few crepitations were heard all over.

Posteriorly.—On the right side, in addition, bronchial breathing was heard down to the fifth rib.

Screen Examination.

Anteriorly.—On the right side loss of translucency extends to the third rib, and on the left to the second interspace. Heart shadow smaller than normal.

Posteriorly.—There was loss of translucency to the sixth interspace on the right side and to the sixth rib on the left side.

Diaphragmatic Movement.—Very jerky in character. Right, ½ inch. Left, ⅝ inch.

This is another case in which bronchitis obscured physical signs.

CASE 8.

Andrew A., æt. 35, had suffered from "chest trouble" for four years and had had slight hæmoptysis on three occasions.

The cough was slight but the sputum contained a few tubercle bacilli. Apart from slight glandular enlargement in the neck and some dyspeptic symptoms the other systems were normal.

Physical Examination of Chest.

Anteriorly.—On the right side there was no dulness, but distinct prolongation of the expiratory murmur down to the first interspace. On the left side there was dulness on percussion from apex to the second rib, the breath sounds being bronchial in character above the clavicle and accompanied by crepitations. Below the clavicle there was prolonged expiration to the second interspace.

Posteriorly.—On the right side there was dulness on percussion to the spine of the scapula and prolonged expiration over this area. On the left side dulness on percussion to same extent as on the right side, the breathing being bronchial over this area and accompanied by crepitations.

Screen Examination.

Similar to photograph. Diaphragmatic movement, right side, 1½ inches; left, 1¾ inches.

Photograph A. Plate VI.

Showing the posterior aspect as taken by a Voltohm tube on a Cathodal plate with an exposure of 3¼ minutes.

The chest shows marked sloping of the ribs on the right side at the lower part and the heart shadow is seen faintly.

On the right side there is loss of the normal clearness as far down as the fifth rib, but particularly interesting is the presence of nodular masses. The best marked of these—nodule 1—is in the fourth interspace and has a distinct rounded character. Above and slightly internal to this is another—nodule 2.

On the left side the loss of translucency extends over the first three interspaces, and above and below the third rib is seen a faintly outlined nodular mass—nodule 3.

Photograph B—one year later. Plate VII.

Was taken on a similar plate with the same duration of exposure, the only change being that a Hirschmann tube was used.

The patient's condition had now much improved; he had gained over five pounds in weight, his cough was almost away and there was no expectoration.

Physical examination of the chest showed distinct shrinkage

—the dulness being more marked but of the same extent as before. The breath sounds were more bronchial in character over the dull areas, but there were no accompaniments.

An examination of the photograph brings out the facts strikingly. The same nodules are seen, but alterations are observable.

The ribs in the upper part now slope more acutely, indicating a shrinkage of the lungs there.

At the lower part, however, in *B* the ribs are more nearly at right angles to the vertebræ, and the interspaces are somewhat wider than in *A*, this being more noticeable on the right side. This, I take it, shows greater expansion in the lower part than previously. The loss of translucency is about the same in extent but more marked in the later photograph.

On the right side nodule 1 is again seen, but even though this is a darker print, the nodule both at the periphery and the centre is paler than in photograph *A*.

Nodule 2 is almost *in statu quo*, but now the shadow of the inner end of the clavicle is well seen above it. Some smaller nodules are seen in the higher interspaces.

On the left side nodule 3 has become larger.

Taking the history of the case and all the points brought out in the two examinations, the disease has evidently advanced somewhat, especially on the left side, and since then, contraction of the lungs at the apices has become more pronounced and with it collapse of the ribs.

On both sides below a condition of compensatory emphysema is well established, as evidenced by the less acute slope of the ribs; the greater clearness of the lungs in the lower central parts away from the shadow of the heart and muscles; and the fact, not already mentioned, that the diaphragmatic movement has increased to two inches on each side.

The photographs are fortunate in revealing many points which ordinary physical signs did not show, and still more are they valuable as permanent records of the progress of a case

Scepticism as to the nodular condition might well be held with photograph *A*, but when photograph *B* taken over a year later corroborates it, any doubt is unjustifiable.

Case 9.

Alexander A., æt 18, had suffered from cough and hæmoptysis and was much under weight.

Physical Examination of Chest.

Anteriorly.—On the right side the percussion note was impaired down to the second rib, and on the left side to the

third rib. Breath sounds were almost bronchial in character above the clavicles and there was prolonged expiration for a few interspaces below.

Posteriorly.—Dulness on percussion was present on the right side to the fifth rib—the breathing being bronchial over this area and accompanied by crepitations.

On the left side the dulness extends to the seventh rib. Bronchial breathing was heard down to the fifth rib and prolonged expiration for two interspaces below.

Amphoric breathing was heard over the third rib internal to the scapula.

Screen Examination.

Anteriorly.—On the right side the loss of translucency extended to the fourth rib, but nowhere was it satisfactorily clear, while on the left side down to the fourth rib the lung was very much less translucent than normal.

Posteriorly.—Loss of translucency extended to the sixth rib on the right side and to the seventh rib on the left side.

Diaphragmatic Movement.—Right, ¾ inch. Left, 1 inch. No sign of cavity was seen by X-rays—if there was one it was, in all probability, filled with secretion.

CASE 10.

John A., æt. 37, suffered from a "weak chest," and had had an attack of hæmoptysis a year previously.

Physical Examination of Chest.

Anteriorly.—Dulness on percussion on the right side to the third rib, with bronchial breathing above the clavicle, and prolonged expiration to the fourth rib. Crepitations accompany the breath sounds to the first interspace. On the left side there was dulness on percussion above the clavicle.

Posteriorly.—On the right side there was dulness on percussion to the ninth rib. Bronchial breathing was heard from apex to the fifth rib.

On the left side the only patch of dulness was over the fourth, fifth and sixth ribs internal to the scapula, and over this area cogwheel breathing was heard. Prolonged expiration was present above this area, and the breath sounds were faint all over.

Screen Examination.

Anteriorly.—Loss of translucency all down on the right side, but very marked over the area between the first and fourth ribs.

On the left side the loss of translucency was not nearly so great, but was quite distinct to the second rib, and slight for an interspace or two below.

Posteriorly.—On the right side loss of translucency all down, and *very marked* from third to seventh rib internal to the scapula.

On the left side the affection extended definitely to the sixth rib, and faintly for a few ribs below.

Diaphragmatic Movement.—Right, ½ inch. Left, ¾ inch.

The special point in this case, in addition to fuller details, is the presence of a dense mass apparently spreading from the root of the lung.

Case 11.

W. R., æt. 32, had suffered from a cough for three years. Sputum contained tubercle bacilli.

Physical Examination of Chest.

Anteriorly.—Slight sinking in above both clavicles. Both on the left and right side there was dulness on percussion to the second rib, and prolonged expiration over these areas.

Posteriorly.—On the right side dulness on percussion was present down to the third interspace, and impairment of the percussion note down to the sixth rib.

Expiration was prolonged down to the third rib, and a few crepitations were heard above this.

On the left side dulness on percussion to the fourth rib, and slight impairment of the percussion note was observed as far as the eighth rib.

Bronchial breathing was heard to the second rib, and down to the sixth rib there was prolonged expiration.

Screen Examination.

Anteriorly.—Loss of translucency was noticed on the right side to the third rib, and on the left side to the fourth interspace.

Posteriorly.—Down to the seventh rib on the right side there was evident loss of translucency, while on the left side practically only the last interspace was clear.

Diaphragmatic Movement.—Right, 1¾ inches. Left, 1½ inches.

Case 12.

Mrs R., æt. 36, had suffered from a cough for some years. She was very much under weight, and suffered from menorrhagia and attacks of diarrhœa.

Physical Examination of Chest.

Anteriorly.—There was slight dulness on percussion at both apices as far down as the first rib, and the breath sounds were vesicular with prolonged expiration over these areas. Hyper-resonance below this.

Posteriorly.—On the right side dulness on percussion as far as the fifth rib, similarly on the left side with impairment of the note to the seventh rib.

Bronchial breathing was heard on the right side above the spine of the scapula.

Prolonged expiration was heard over the dull area of the left side; and over the fourth, fifth and sixth ribs crepitations were heard.

Below these areas on both sides there was hyper-resonance.

Screen Examination.

Anteriorly.—There was loss of translucency to the second rib on the right side, and the second interspace on the left.

Posteriorly.—The loss of translucency extended to the fourth rib on the right side, and the seventh rib on the left side.

Below the shadowed areas anteriorly and posteriorly the lungs are abnormally clear, indicating an emphysematous condition.

Diaphragmatic Movement.—1¼ inch on each side.

The photograph agreed fairly accurately with this.

CASE 13 (*see* CHART B. G.).

B. G., æt. 20, complained of pain under the left shoulder-blade, lasting for five weeks. Cough slight, with scanty expectoration containing a few tubercle bacilli.

Physical Examination of Chest.

Anteriorly.—There was dulness on percussion on both sides to the second rib, with bronchial breathing above the clavicles.

Posteriorly.—On the right side the note was impaired to the third rib, and crepitations were heard over this area. Bronchial breathing was heard above the scapula, and prolonged expiration for a few interspaces below.

On the left side there was dulness from apex to the seventh rib, the breathing being bronchial to about the fourth rib, and vesicular with prolonged expiration below. Crepitations were present all down this side.

Screen Examination.

Anteriorly.—There was diminished translucency on the right side down to the third rib, and all over the left side.

Posteriorly.—The right side showed loss of translucency to the fifth rib, and all down the left side, being most opaque to the fourth rib.

Diaphragmatic Movement.—Right, 1 inch. Left, ½ inch.

A photograph corroborated this exactly.

CASE 14.

David S., æt. 18, had suffered from chest trouble for about two years. He was very much under weight; had occasional attacks of hæmoptysis; and the thick, tenacious sputum contained tubercle bacilli.

Physical Examination of the Chest.

Anteriorly.—Dulness on percussion was noted on the right side as far as the fourth interspace, and on the left side as far as the fifth rib—a tympanitic note being made out at the second interspace.

The breath sounds were bronchial as far as the fourth rib on the right side, and crepitations accompanied.

On the left side bronchial breathing was heard as low down as the fifth rib, and below this prolonged expiration. Crepitations were heard all over.

Posteriorly.—The dulness extended on the right side as far as the sixth rib, and on the left side to the eighth rib.

Bronchial breathing extended on both sides as far as the sixth interspace, and crepitations were heard almost all over the back.

At the left base there was pleuritic friction.

Screen Examination.

Anteriorly.—There was loss of translucency on the right side to the sixth interspace, and on the left side to the sixth rib, except over the second interspace, where there was a clear space indicating a cavity.

Posteriorly.—The loss of translucency extended to the ninth rib on both sides, being more marked at the apices.

A clear space, indicating another cavity, or an upward prolongation of the one seen anteriorly, was seen over the third interspace.

Diaphragmatic Movement.—Right, ⅛ inch. Left, ¼ inch.

Photograph. Plate VIII.

This was taken showing the anterior aspect, with the tube at a distance of 18 inches. A Lumière plate was used, and the duration of exposure was 2½ minutes.

What at once strikes an observer in this case is the marked disparity between the two sides—the left lung being much less expanded than the right. This is in part due to the more advanced thickening of the lung there; but, no doubt, also to the fact that the existing pleurisy impaired its movement.

On the right side the ribs go out almost at right angles to the sternum, and the interspaces are wide; while on the left side the ribs slope more, and the interspaces are narrower.

The heart, which is not enlarged, is well seen, low down.

The left lung is very opaque at the apex, almost obscuring the shadows of the ribs, and below this the mottling extends to an interspace above the diaphragm.

A clearer space indicates the cavity, which was much better seen on the screen.

The right lung shows mottling practically down to the diaphragm, but the apex is not so opaque as on the left side.

The screen showed the loss of translucency practically the same in extent on both sides, although a little more on the right side, and the marked difference between the two results I attribute to the disturbance of the cardiac movement affecting the photograph more.

A photograph showing the posterior aspect tallied exactly with this.

Post-mortem Photographs.

It might naturally be expected that reports of these should precede records of cases, but unfortunately I have only recently been able to do any of this work. I have to thank the Senatus of the University for grants from the Moray Bequest for this and other parts of this research, and Professor Greenfield in particular, for kindly lending me specimens.

What I have done establishes the facts that tuberculous disease gives a mottled shadow, a thickened pleura a more homogeneous shadow, and that patches of emphysema and cavities can be observed.

The photograph is here probably of more value, as there is no movement to interfere with the effect.

An ideal series would be to have an X-ray photograph of a case just before death, then after death, and, lastly, of the lungs after removal from the body.

It seems to me that such a series could readily be obtained

in a lunatic asylum, where so many patients die of tuberculosis; and difficulties, sentimental and otherwise, do not often stand in the way.

The photograph shown was taken on a Cathodal plate with a Hirschmann tube and an exposure of thirty seconds. Distance of tube, eighteen inches.

The specimen was a vertical lateral section showing half a lung which had been kept in preserving fluid.

The tuberculosis had extended all over the lung, but in addition the specimen was more consolidated owing to the action of the preserving medium.

At the apex is a patch of emphysema clearly seen, and this was only revealed afterwards by cutting into the specimen; between this and the convex margin are one or two clear spaces which are small deep cavities.

Below the sulcus is an obvious cavity which was only apparent on the surface, between two lines marked ( )—the photograph reveals the spread internally.

The main bronchi and their divisions are very well displayed; and along and around these, small clear patches indicating cavities are seen.

These cases are examples of some of the commonest types of pulmonary tuberculosis; as regards the acute miliary form I have no experience, but definite shadows in this condition have been observed by Drs Walsh of London and Williams of Boston, U.S.A.

In early phthisis the results are gratifying, as repeatedly one finds that X-rays will reveal the condition before ordinary physical methods give any definite information.

This should place this method of examination in the forefront, as phthisis of all diseases is one that must be treated early.

Walsham, Espina Y. Capo, Immelman and Williams are all agreed on this point.

Three points are noted chiefly in these early cases:—

1. Loss of the normal translucency is due to infiltration, not merely congestion, as proved by Walsham's experiments recorded in the Transactions of the British Congress of Tuberculosis. In these experiments he washed the blood out of the affected parts and photographed before and after so doing.

In older persons the lungs are not so clear as in younger, and naturally in a muscular individual the rays pass less readily; consequently allowances have to be made in these cases. The

significance of a faint loss of translucency is undoubtedly difficult to determine; and here experience, coupled with a prolonged, careful, and if necessary repeated examination, is the only safeguard.

2. Alterations in the shape of the chest are in the nature of things more easily discerned by X-rays. These are more marked, however, in advanced cases.

3. Impairment of the diaphragmatic movement is a very important sign and one of the first to be noted. Early cases may be characterised by great restriction of movement even though the loss of translucency be slight. A peculiar jerky and at times a wave-like motion was observed in some cases which may have been due to faulty innervation, the result possibly of reflex irritation from the diseased lung.

It is especially in these early cases that a faultlessly working apparatus is so desirable; too great flickering or an imperfect, irregular interruption on the coil may absolutely vitiate results.

In more advanced cases the value of this method lies in the increased amount of detail as to the topography of the disease that it brings before us.

The loss of translucency may be absolute in parts, giving a homogeneous dense shadow. A cavity, if free from secretion, stands out as abnormally translucent, but if filled with secretion may not be seen at all. Plate VI. shows a case in which nodules were discovered, and in several others I have observed them.

Very marked in these cases often is the collapse of the ribs on one or both sides of the chest, an evident proof of the diminished expansion.

Emphysema gives increased clearness, and is very often observed at the lower part of the chest.

Pleurisy when acute is only faintly seen, but when chronic gives a homogeneous shadow quite distinct from the mottled character of the phthisical shadow; and in acute pleurisy we can readily see the diminished movement of the affected part.

Pleuritic effusion can be very well observed, and its upper margin demarcated.

Placing all these facts together, I can best illustrate my opinion of the usefulness of X-rays in the diagnosis of chest conditions by asking the reader to realise what the difference is between looking at a stained-glass window from the outside

and the inside. If I claim that the wealth of colour and detail got from an inside view is comparable to the results obtained by X-ray examination, I may be charged with optimism; it is well to hear both sides of the question, and lukewarm advocates and destructive critics are by no means a dying race.

The method is, unfortunately, not applicable in general practice, but in hospitals it might almost be a routine one.

In conclusion, having put one side so strongly, I would lay stress upon the fact that with this, as with every other method, one desires as many facts of history and symptoms as possible; and then, when ordinary physical examination and X-ray examination,

> These twain . . .
> Sit side by side, full summ'd in all their powers,

we may make greater strides in the diagnosis and treatment of this disease.

Williams puts this point in very apt words—"We may, by their use, not only control one method by another, but with the eye supporting the ear, we may also control one sense with another."

NOTE.—Unfortunately the reproductions of the photographs do not bring out all the details of the originals, this being particularly the case in Plate VII.

THE OPHTHALMIA OF NEWLY-BORN CHILDREN

By LESLIE BUCHANAN, M.D.,
Surgeon, Glasgow Eye Infirmary

IT is probable that every general practitioner of medicine has had experience of the inflammation of the conjunctiva which occurs within a few days after birth, and has seen the disastrous results to which it sometimes leads. Certainly, every ophthalmic surgeon and every official in the asylums for the blind is aware, both from their own experience and the published statistics of various countries, that quite a large proportion (20 to 25 per cent.) of the blind population have been brought to their present condition by this disease.

It is a most regrettable circumstance that this should be so especially as, in a considerable proportion of cases at all events,

much can be done to prevent the disease from giving rise to such lamentable consequences by care and steadfastness in the treatment of it during its course.

Much has undoubtedly been done in the past, both towards the prevention of the malady itself and towards the improvement of the methods of treatment of it, and it is probable that future generations will not find so large a proportion of cases of this nature as at present exists in our asylums.

The following statistics taken from the Reports of the Glasgow Eye Infirmary will show that whilst the total number of cases treated each year is larger than it was thirty years ago, as one would expect, the proportion of cases of ophthalmia neonatorum to the total number of new cases treated is much smaller.

In 1860, 1672 new cases were treated, and amongst these were 29 cases of ophthalmia neonatorum, a proportion of 1·7 per cent.

The percentage of cases of ophthalmia for the decade 1860 to 1869 was 1·3.

In 1870, 2737 new cases were treated, and of these 33 or 1·2 per cent. were cases of ophthalmia neonatorum, whilst the percentage for the decade 1870 to 1879 was 1·01.

In 1880, 6779 new cases were seen, a percentage of ·8 only of which were ophthalmia neonatorum, and the percentage for the decade 1880 to 1889 was ·76.

The last decade shows a still further decrease to ·5, whilst probably 20,000 new cases in all were treated in 1899.

These figures are all perfectly reliable and indicate a very satisfactory state of matters. It must be noted, however, that there have been years in which the proportion of cases of the ophthalmia of newly-born children to other eye diseases have been exceptionally high. In 1873 the proportion was 1·9 per cent., whilst in 1877 it was only ·3 per cent. In 1886 the proportion was ·6 per cent., whilst in 1887 it was 1 per cent. This may indicate that there are influences which affect the frequency of the disease quite apart from the purely pathological, and the bearing of which is not perfectly clear. Climatic influences cannot be proved, from the monthly statistics of the Eye Infirmary in 1862-63-64-65, to have much influence, as there seems to be no period of the year in which

the disease occurs markedly more frequently than at others, although cases do occur in runs. Social influences probably have more power to affect the proportion of cases, but it is very difficult to establish facts of this kind, especially as it cannot be ascertained in all cases that the disease is of similar origin.

Clinical History.

The fact that the eyes of a child are affected by some inflammatory disease is usually first noticed by the mother or the nurse about the third day. Sometimes, however, the disease shows its presence earlier than this, in some cases even being present at birth, and sometimes it is a week or ten days before the first signs are noted.

The first evidence of disease is usually seen in the presence of a spot of pus-like discharge at the inner canthus.

If both eyes are not affected at the date of the first visit to the surgeon, infection of the second almost always occurs, in spite of all precautions.

With great rapidity the disease follows its course, and soon the eyelids become deeply congested and greatly tumified by the occurrence of œdema.

The upper lid especially becomes swollen, and usually overlaps the lower by a quarter of an inch or so. The lids are sealed together by dessicated discharge, and when this is removed and the lids are forced apart a large drop or body of pus presents. Usually the pus is of creamy colour, but sometimes it is yellowish or even greenish in shade.

The facility with which the eyelids become everted is remarkable, and when eversion occurs, the conjunctiva, greatly thickened and of fleshy appearance, presents itself in folds and deep sulci.

The first flowing of lotion over the eyelids washes away the semi-fluid pus with ease, but after this is accomplished it is often a matter of great difficulty and care to remove the thready masses of puro-fibrinous exudation which lie hidden in the sulci of the thickened conjunctiva.

The small size of the infant's head, the agility and rapidity of the movements, and the narrowness of the palpebral fissure,

render it exceedingly difficult to wash out the eye thoroughly unless the child's head be very effectually fixed.

The ordinary and most satisfactory way in which this may be accomplished is to lay the child on its back on the nurse's lap, with the head to the surgeon and the legs under the nurse's left arm.

The head is then placed between the surgeon's knees, and, being supported by a mackintosh or towel, is fixed there by firm lateral pressure. The nurse then can hold the child's legs, body and arms whilst the head is fixed by the surgeon, who has, and requires to have, both hands available to carry out the necessary procedure.

After the main body of discharge has been removed on a piece of lint soaked in lotion, and before proceeding to remove the thready masses, the state of the cornea should be investigated with great patience and care.

For this purpose it is often advisable to use a small lid retractor, such as can easily be made out of strong hairpin, in order to avoid making any pressure whatever upon the eyeball.

When this is accomplished, the remainder of the discharge should be removed with small pledgets of cotton-wool soaked in the lotion. As the eyelids are always slippery and soft, great assistance will be gained in this matter by covering the tip of the finger with which the upper eyelid is being retracted, usually the left forefinger, with a piece of thin cotton rag, which gives a comparatively firm hold on the skin.

During the manipulation great care must be exercised so that no pressure is put upon the eyeball, as otherwise an ulcer of the cornea, which may be deep, may be ruptured, and the ocular contents extruded, with woeful result. Sudden movements of the child's head may take even the most experienced by surprise, and a sudden but severe increase of pressure in the eye may be the result.

It is true that the skilful use of a retractor would prevent the occurrence of this, but unfortunately the use of such an instrument almost always prevents the eversion of the lid and the exposure of the retrotarsal fold which is so necessary.

It is absolutely imperative that the cornea should be seen every day, at no matter what expenditure of trouble, patience

and time, for an ulcer of the cornea may develop and penetrate within a comparatively few hours.

As involvement of the cornea is the principal source of danger in such cases, it can readily be understood that this structure must be watched with the greatest care, a retractor being used if necessary, and if any sign of cloudiness which will not wash away in a stream of lotion, or of ulceration, be observed, immediate means should be taken to promote recovery if possible.

Ophthalmia neonatorum runs a slow course in spite of all treatment, a fortnight or three weeks being necessary even in the most favourable cases to bring about complete recovery, whilst in many cases the discharge may continue for one or two months.

Signs of amelioration are seen in the diminution of the purulent discharge, in the lessening of the œdema of the upper eyelid, and in the occasional opening of the eye. This last is probably the most satisfactory sign of all, as it serves to reassure the parents and establish confidence.

It sometimes happens, however, that a temporary improvement may take place, to be followed in a day or two by relapse, so that it is necessary to carry out the treatment until all signs of discharge have ceased.

The Nature of the Affection.

Ophthalmia neonatorum is now recognised to be the result of infection of the conjunctiva by discharge from the vagina or other parts of the mother during birth. This fact was first noted in 1807 in the *Edinburgh Med. and Surg. Journ.* in a paper by Benjamin Gibson.

Statistics show that, almost without exception, the mother of a child which suffers from this disease is the subject of some discharge from the genito-urinary system, and in most it is possible to demonstrate the existence of gonococci in the maternal discharge. It is often difficult to get an opportunity of examining the discharge from the maternal parts, but there should be no difficulty in examining that from the child. Great numbers of cases have been examined at various stages of the disease, and it is proven conclusively that in something

like 80 per cent. of all cases at an early or middle stage the gonococcus is present. Many other organisms are present, often of the class of diplococci, sometimes staphylococci, and less frequently bacilli, as that of Weeks. The principal organism, however, is the gonococcus, and from this fact, as from the fact that other manifestations, such as joint affections, in which gonococci have been found, it is fairly conclusively proven that the disease is of the same nature as gonorrhœa.

In cases in which it is established that purulent ophthalmia has been present at birth in a well developed form, it may be the case that the child has been affected at an early stage of a prolonged labour, or that the child has been infected by the liquor amnii.

The affections of the wrists, ankles and knees of infants suffering from purulent ophthalmia, as also the occurrence of cerebral or meningeal affections are rare, being found only in a very small percentage of cases, but such evidences of general infection should be looked for carefully.

It is a very remarkable fact that infection of the mother's eyes from the child's is very unusual, notwithstanding the great risk run.

Late infection of a child's eyes, due possibly to infection conveyed directly from the maternal genitalia several days after birth, is occasionally seen.

Lastly, in this connection, but of great importance, it is to be noted that the hands of the nurse, or even of the surgeon, may convey the discharge to the eye or other part even of another child or patient, with the result that a very severe purulent inflammation is set up.

Treatment.

The treatment of such a case is of two kinds, local and general. Local treatment consists of careful and oft-repeated washing out of the eyes with an antiseptic solution, such as bichloride of mercury (1-8000), boracic acid (saturated), permanganate of potassium (1-2000), or any others. The mercurial lotion is probably the best, and is often most easily obtained. Formalin is good, but is very irritating, even in weak solutions as 1-1000.

The washing should be very thorough, and should be repeated as often as discharge is seen when the eyelids are separated, even every hour day and night if the discharge is profuse.

In addition to this, the regular instillation of one or two drops of protargol (10 per cent. or 20 per cent.) once or twice a day, or of the nitrate of silver (4 grs. to the ounce) is of great benefit in many cases.

Opacity of the cornea should be treated by painting with protargol, which is much less irritating than silver nitrate, and the use of atropin (1 per cent.), or eserin (½ per cent.), according to the necessity of the case.

If the cornea be ulcerated, but not extensively or deeply, the same treatment as for opacity should be applied, but if the ulcer be deep or widespread, it is often advisable to apply the actual cautery.

Cauterisation of a purulent ulcer to be effectual must be very thorough, the whitish yellow edges of the ulcer being destroyed, and even the greyish infiltration which surrounds the ulcer touched.

The floor of the ulcer should also be touched, unless it is seen to be bulging forwards on account of the thinness of the structure.

When the cautery is to be applied it is often advisable to give the infant an anæsthetic, often a general anæsthetic, as thereby the necessary accuracy of application is much facilitated.

After washing out the eyes and putting in protargol, etc., it is useful to apply some ointment to the lids, which prevents adhesion by dessication of discharge (yellow oxide of mercury ointment, 4 grs. to the ounce).

It sometimes happens that the cornea sloughs entirely, and the iris bulges forwards owing to the pressure of the lens from behind, and in such a case practically nothing can be done besides washing out the conjunctival sac, for the eye is hopelessly lost.

General Treatment.

The general treatment of the patient is of considerable importance, and consists entirely of attending to the state

of the mouth and digestive functions. Many children are very poorly nourished, this fact being due as much to ignorance on the part of the mothers as anything else.

Attention to the means of nourishment will often produce a notable improvement in the state of the eyes as well as of the general state of the little patient.

In the treatment of joint affections, etc., little can be done, but the use of grey powder and rhubarb may be of benefit.

Such affections of the joints tend to spontaneous cure.

Prognosis.

If the child is seen at an early date after the disease is manifest, and treatment is carried out faithfully and courageously, and it may be said here that the mother often requires much encouragement, and kindly but firm advice, it is undoubted that a favourable issue may be expected in almost 75 per cent. of cases.

In some cases, however in spite of all that can be done, ulceration of the cornea is developed, and advances at a dreadfully rapid pace. In such cases it is probable that either the general state of the patient is very poor, or that the attention given to the child's eyes is inadequate.

Ulceration of the cornea does not always lead to loss of sight, however, for it is often wonderful how much of a corneal opacity will clear away in a few months.

If the cornea has been ruptured and prolapse of iris has taken place, the result is never very satisfactory, although a fair amount of vision may be retained.

In those cases in which sloughing of the cornea has taken place, as before indicated, there is no hope of vision, but the eye may be retained, although bulging of the anterior part has occurred, as much for the sake of the growth of the orbit as for any other reason.

Removal of the eye should only be resorted to if treatment by pressure or abscission of the staphyloma proves insufficient to save the child from the malnutrition consequent upon prolonged pain and increased intraocular tension.

Prevention.

It is highly probable that a larger future awaits prevention than treatment in regard to ophthalmia of newly-born children.

Much can be done in this respect by the satisfactory cleansing of the maternal parts before and even during labour by flushing with warm antiseptic solutions. Many obstetricians have laid stress on this point, but mainly in connection with the prevention of puerperal septicæmia; the same treatment would, however, avail for both purposes.

It is often of little use to enquire for the presence or absence of leucorrhœa at the time of labour; and in hospital cases, in which it may be said this disease is most prevalent, the mother is rarely seen until the services of the obstetrician are required, so that no opportunity is given for a previous examination. Hence it is advisable that constant care should be exercised in all cases in which there is reason to think that this affection may be present.

As regards the eyes of the infant, it is many years now since the preventative measure of Crédé was laid before the medical public, and it may be that it is to the use of this method of treatment—the regular instillation of nitrate of silver solution (½ per cent.) into each eye of every child born—that the diminution of cases of this disease of infants is due.

Before leaving the subject, it should be remarked that many infants suffer from a slight form of catarrhal ophthalmia with but little discharge, about the first week of life. A simple antiseptic lotion and ointment, yellow oxide of mercury, 4 grs. to the ounce, will readily promote recovery.

Clinical Records

RUPTURED PYONEPHROSIS—ABDOMINAL SECTION WITH FLUSHING AND DRAINAGE—RECOVERY

By JOHN EDGAR, M.A., B.Sc., M.B., F.F.P.S.G.,

Professor of Midwifery and Gynæcology, Anderson's College Medical School; Surgeon, Glasgow Samaritan Hospital for Women

MRS McL., aged 21, was admitted into the Glasgow Samaritan Hospital on the 18th January 1902, complaining of a painful mass in the right lumbar region, of three months' duration.

History.—Patient had a normal confinement on the 2nd September 1901. Previous to this she had always been healthy, but a week or two afterwards she began to feel chilly at times, and now and then she perspired profusely, more especially at nights. Five weeks after the confinement a menstrual period set in, and lasted four days. Partly in consequence of this, but chiefly because of her weakness and the presence of a somewhat painful lump which appeared in her right lumbar region at this time, she was advised by her medical attendant to stop nursing her child. About a couple of weeks afterwards the lump, which had not till then troubled her very much, began to pain her considerably. The pain was of a dull, dragging character, and was almost constantly present till admission into hospital. The lump went on increasing steadily in size, and the patient grew weaker and more anæmic. She continued to have night-sweats, but had never any distinct rigors. Menstruation did not recur.

Condition on Admission.—Patient was found to be very anæmic, and somewhat emaciated and feeble. Her temperature, for the first few days, ranged between 98° F. and 99·6° F., and her pulse, though somewhat compressible, was normal as regards rate. The urine was faintly acid, spec. grav. 1025, and purulent; but there was no sugar nor blood, and only as much albumen as might have been accounted for by the presence of the pus.

On examination, a fluctuant mass, measuring six inches vertically, and seven and a half inches transversely, was found bulging the right lumbar region. Its upper border was three inches above, and its lower border three inches below the level of the umbilicus. Towards the left it reached two and a quarter inches beyond the middle line. The ascending colon lay superficial to it. Its surface was smooth, and there was a tender spot slightly below the lower costal margin in the axillary line. The percussion-note over the mass was dull, and was continuous with the area of hepatic dulness. The uterus was normal in position, size and mobility, and the normal right ovary could be felt at the level of the pelvic brim, close to the lower margin of the mass already described, but not attached to it.

It was evident that the mass was renal, probably a large pyonephrosis.

On 24th January patient was suddenly seized with severe cramp-like pains in the right lumbar region, together with symptoms of collapse—pallor, vomiting, cold clammy perspiration, rectal temperature 96° F., and pulse very small and slow (52 per minute). Later in the day the temperature rose to 101·4° F., and the pulse to 130 per minute. The respirations were 36 per minute, and the abdomen became distended and tender.

I did not see her till the following morning. She was then moribund. Her temperature had fallen to 98·6° F. The pulse was scarcely perceptible, and was so rapid that it could hardly be counted. The expression was anxious and the features pinched. The mass in the right lumbar region was no longer to be felt, and the abdomen was uniformly distended and tender. The patient looked as if she would die in an hour or two. Two of the hospital staff, who saw her with me in consultation, advised against operation on the ground that any interference would be hopeless. However, as it was the only chance the patient had, I determined to open the abdomen.

Operation.—Having got the patient put under the influence of ether, I made an incision through the right linea semilunaris, and evacuated a large quantity of thin greenish-yellow pus. A constant stream of normal saline solution was then allowed to flow into the abdominal cavity, while the coils of intestine were gently separated. The distended kidney was then brought into view, and a small opening was discovered on its outer margin. I enlarged this opening, and washed out some thick, yellow pus. No calculus nor other cause for the pyonephrosis was found. After making a small incision in the lumbar region, I passed a couple of drainage tubes into the kidney, and a glass tube through the first incision into the peritoneal cavity. The latter incision was then sutured above and below the tube. As the patient was in a state of collapse, some saline solution was left in the abdominal cavity, and another pint and a half were infused into the axilla, while one-thirtieth of a grain of strychnine was injected hypodermically. Nutrient enemata, containing brandy, were then administered every four hours.

On the third day the temperature rose to 103·6° F., and the pulse was 152; but after that the temperature never rose above 101·8° F. It fluctuated for about three weeks, and then remained normal. During this time there was some diarrhœa, but the pulse gradually improved. The glass tube was removed on the fifth day, and the rubber tubes on 22nd March. The kidney was washed out daily with a solution of peroxide of hydrogen. When the patient was dismissed on 27th March, two months subsequent to the operation, she felt very well; but there was still a slight discharge of pus from the sinus in the lumbar region.

On 22nd April patient returned to report herself. She was much stouter and stronger. A small quantity of pus still escaped from the lumbar sinus, necessitating the dressing of the wound every second day. The kidney measured three and a half inches vertically, and three inches transversely. The inner border was situated at the anterior scar, two and a quarter inches to the right of the middle line.

A CASE OF DERMATITIS HERPETIFORMIS, OR HYDROA

By ROBERT PARK, M.D.,
Glasgow

MRS R., aet. 49, the mother of eleven children (all alive at date of writing), and the subject of three miscarriages, arrived at the menopause two years ago (*i.e.* December 1899). Her last pregnancy was in her forty-second year. The child is alive and healthy, vigorous indeed. About the sixth week p.p. she had a severe rigor. Soon afterwards an eruption began and spread, more or less, over the whole body. In January 1901 I was called to attend. I found a woman of very good aspect, Irish, well-fleshed, considering history of over two years confined to bed, possessing a deformity of right foot, the anterior half being drawn up at an obtuse angle so that only the heel touched the ground in the erect posture. There was a white callus over the anterior aspect of the tibia, lower third, 1½ by 2½ inches in area, indicative of an ancient sphacelus, but now forming the centre of an acute dermatitis, involving the whole superficies of the foot and leg up to the knee. Over all of this there were herpetiform eruptions in all stages of process from papule to pustule or bulla, and in size from that of a split pea to that of a florin. The whole skin of the body, especially upon the inner aspect of the thighs and nates, the vulva, the abdomen, the thorax, the inner aspects of the arms and forearms, was dense, thickened, inelastic, and inflamed, and covered either with herpetiform eruption in varied stages of pustulation, and circular, or segment-circular form, or the deep-red superficial stains of where these had been.

The abdomen was enormously swollen and tympanitic over the transverse colon. Behind and below this I made out a well-defined mass, dull and fluctuant to percussion, and lying in the left hypogastric and iliac regions betwixt the umbilicus and anterior superior spine of the ilium. The tumour "bobbed" to the index, and was painful to touch at a point half-way betwixt the landmarks given.

This led to inquiries as to uterine and vaginal conditions. Persistent discharges from the vagina were admitted, the labia being much irritated thereby. Varying in quantity from time to time, these were sometimes watery, sometimes purulent. Examination revealed a violent vaginitis, colpitis, and endometritis; a patulous os and cervix, and a sub-involution, the measurement being 3½ inches.

The patient's tongue was flabby and furred. Her pulse 120. Temperature 101°. The pulse was soft and compressible; the least exertion caused profuse sweatings; she had frequent minor rigors; much sacral and coccygeal pains, especially upon upsitting. The teeth were good and the gums sound.

Inquiries elicited nothing calculated to throw light upon the pathology. The morphology of the eruption, and the condition of the right leg were patent facts, as was also the hydropyosalpinx. I therefore prescribed hydr. c^{t}. cretâ with phenacetin twice daily; a saline purge daily; ext. fel. bovis, gr. v, in tabloid form thrice daily for the tympanitis; and to improve appetite, etc., an euquinine mixture. Locally an ichthyol ointment was used for the most part, and an ichthyol glycerole for the foot. Applications were also made to the uterus and vagina, with a view to drain off the pyosalpinx, at the same time that a Beiersdorf plaster mull of hydr. c^{t}. ichthyol was laid over the left iliac and hypogastric regions.

An immediate amelioration was achieved, *post sed non propter*, as events proved, a cyclic amelioration being probably due. The patient was feeling much better, when a recrudescence set in about the end of March. As this was associated with slight salivation and stomatitis, I began to fear that I was on the wrong tack. No impression had been yet made upon the tumour, notwithstanding blistering. On the 20th April Dr Middleton saw the case with me. Then the rash was very well marked and typical, but the tumour had disappeared! Dr Middleton couldn't make it out at all, and I could just feel a small, softish, knob-like lump—still painful to touch—where it had been.

Dr Middleton was good enough to agree with my notion of pathology and treatment. I therefore persevered, putting another blister over the site of tenderness, and trusting more to Beiersdorf hydr. plasters than to internal administration. Certain progress was made this way. Nevertheless I had my doubts about the pathology, and therefore about the treatment, which were intensified by a relapse, after great improvement, about the end of May. The hydr. element was therefore omitted and she was put upon a tonic treatment, especially addressed to the cardiac condition, continuing the bile and saline, and giving, daily at first and then every other day, hypodermically an injection of cacodylate of sodium, 0·05 gr. in each, the solution made by Fraisse, the French pharmacist being used (83 Rue Mozart, Paris).

This had an immediate and gratifying effect. After thirty injections her skin condition was very good, and she would have been able to sit up but for the precardial pain and the coccygodyina and sacralgia experienced. Her pulse still kept quick,

soft, compressible and weak, and any exertion put her into a profuse sweat.

Nearing the end of August a fresh recrudescence of the skin manifestations induced me to cast about for some other remedy. My attention had been arrested in mid-September by the physiological effects reported concerning adrenalin, especially upon the heart. Hitherto I had failed by means of digitalis, spartein, belladonna, strophanthus, in various forms and combinations, to get the pulse either reduced in frequency or increased in force; and the precardial pain was an insistent phenomenon. I saw that an essential desideratum was to achieve subjugation of this. Whilst, therefore, continuing the general treatment, I substituted adrenalin hypodermically for the cacodylate. At first the dose was one drop of the solution, supplied by Messrs Parke, Davis & Co. This I rapidly increased, however, until in ten days I was using 20 ♏ every second day. The result was most remarkable. All the skin phenomena disappeared, even to the stains left by the vesicles and bullæ. Synchronously, the natural resiliency and elasticity of the skin was restored. The pulse fell to 60, and the precardial pain was abolished. Could all this be *post* and not *propter?* The injections were omitted for ten days, viz., from Christmas 1901 till January 5, 1902. On that day three abortive herpetic spots appeared. This was ominous, but I refrained from using the adrenalin till the 10th, on which date there was a bleb upon the neck, and upon the back of the right thigh there were numerous herpetic vesicles, and a distinct, though limited dermatitis. This indicated necessity for renewal of adrenalin, and inadequacy of the cacodylate alone in overcoming the morbid proclivity. It was obvious that the effect of the adrenalin was not persistently therapeutic, although its physiological effect had been in reducing the pulse-rate.

Feb. 4, 1902.—A nephew, recently returned from the war, and his mother, a sister-in-law of the patient, having both died, after short illnesses, the patient has been much grieved and depressed and a very distinct recrudescence of all symptoms has taken place. This marks the neuropathological character of the disease, for she herself is not of the neurotic type.

On March 1 the injections had to be omitted during my absence from home, and she was put upon a cacodylate of soda mixture. At this date the hydropyosalpinx had filled again and could be easily made out.

On March 14 there had been a great flow of sero-purulent fluid per vaginam, and the intumescence had diminished. The dermatitis, however, is very great and large bullæ have formed causing great pain and profuse secretion. There are

also profuse night sweats of the *cold* type. The adrenalin injections were resumed—20 ♏ P. D. & Co. solution daily: and the mixture was omitted.

March 21.—The dermatitis began to resolve, the eruption to dry and scab, and the sweatings to lessen from the first injection. The cacodylate injections were now resumed also. On March 26 I had a consultation with Mr Maylard referable mainly to the pyosalpinx. He had difficulty in locating the intumescence; but it was arranged that she should go into the Victoria Infirmary to be examined under chloroform, as soon as the skin symptoms were in abeyance.

This was the case upon May 2 when she was received into the Victoria Infirmary. On the 6th I had a note from Mr Maylard stating that she had been twice examined and that no tumour could be made out. She was discharged upon the 16th, on which date a fresh recrudescence of herpes threatened, and soon thereafter she went to a daughter at Galashiels for a change, returning thence about the beginning of July, and when I saw her on the 7th it was to find the herpes and dermatitis worse in all respects than at any previous time. Her general condition also was deteriorated, the hepatic and gastric functions deranged, her nervous system much shaken, insomnia present, largely arising from actual pain and discomfort proceeding from the condition of the skin, a violent erysipelas had taken possession of the deformed foot, and the callus over the bone had softened to the extent of a crown-piece, leaving an open and unhealthy ulcer.

The treatment by adrenalin injections was at once resumed, having been interrupted while she was away by her inability to employ them herself. Ten ♏ injections only were now employed, larger doses having induced faintness. Adrenalin evidently requires to be reduced rather than increased after a certain dosage has been reached or the patient has become sensitised. At the end of fourteen days improvement was manifest: and by the beginning of August she was skin whole again, though the stainings were deeply marked. The result so far was entirely due to the adrenalin, no other drug having been employed since her return. The dose had further to be reduced to 5 ♏ now, and the cacodylate injections were also resumed. Slight recrudescences of discrete herpes rapidly aborting upon a non-inflamed area, were noticeable; and $\frac{1}{10}$th of a grain of heroin was occasionally administered for insomnia and irritation till September 30, when all symptoms, except scattered deep-red stainings, and certain heat flushings and sweatings upon exertion, disappeared.

Oct. 8.—She continues as at last report. There has been

no recurrence of the pyosalpinx and no discharges of any kind. She continues adrenalin injections only of 5 ♏ daily, and I am in hopes there will be no further recrudescence.

Remarks.—The pathology of the skin trouble seems to me now to be entirely vaso-motor. It is a true vaso-motor ataxia with trophic phenomena indicative of irritation in the posterior cornua of the spinal cord. The cure seems, so far, mainly due to adrenalin. It has also, in my opinion, the entire credit of ending the hydropyosalpinx. Her pulse remains steady at 60.

Meetings of Societies

Glasgow Medico-Chirurgical Society

THE opening meeting of the Society for the Session 1902-03 was held on Friday, October 3—Dr W. G. Dun, the President, in the chair. A very large muster of members took place to listen to Dr John Macintyre's description and demonstration of recent electro-therapeutic work and apparatus in medicine and surgery, being a continuation of the address given last session.

Dr Macintyre treated of the subject under four heads:—

(1) *Certain Physical Considerations.*—He described here the various forms of radiations employed, from the X-rays, through the Bequerel waves and ultra-violet vibrations, to the red (heat) waves, and on to those of electricity.

(2) *Forms of Apparatus.*—In this section of the address were discussed: (*a*) Latest modification in light treatment, including Finsen's new lamp, Bang's modification, and Dr Macintyre's own experiments with the incandescent gas lamp. (*b*) High frequency currents. In connection with these were described Gaiffe's recent pattern of D'Arsonval's instrument; Tesla's older form, an oil condenser; and special electrodes used in diseases of the nose, pharynx, larynx and gullet. (*c*) High potential currents. Here mention was made of Gaiffe's improved sectorless Wimshurst machine and accessory apparatus for using a static machine instead of a coil for producing high frequency currents. (*d*) Röntgen rays. Under this section a description was given of recent improvement in X-ray apparatus, including Chaband-Villard's modification of the Crooke's tube.

(3) *Consideration of the different Methods.*—The choice of a method therapeutically is governed by various considerations, such as the nature and site of the disease, the apparatus available, the time at one's disposal, and the idiosyncrasy of the patient.

(4) In conclusion, Dr Macintyre described the clinical result

obtained in lupus, in rodent ulcer, and in malignant disease, in all of which there had been examples of extraordinary benefit after all other means of treatment had been exhausted.

The demonstration was illustrated by beautiful lantern slides and by many of the pieces of apparatus which had been described. Dr Fergus, Dr Napier, Mr Henry Clark and Dr Lindsay Steven took part in a discussion, and, on the motion of the President, a very hearty vote of thanks was accorded to Dr Macintyre.

THE second ordinary meeting of the Society was held on October 17—Dr W. G. Dun, President, in the chair.

Dr Charles Workman showed as fresh specimens—(1) a liver showing a hydatid cyst, with daughter cysts; (2) a stomach (same case) exhibiting extreme passive hyperæmia.

Dr M'Kellar Dewar exhibited a patient who had suffered from acute carcinoma of the kidney, which was successfully removed by nephrectomy. He was forty-two years of age, and was admitted to the Royal Infirmary for slight hæmaturia. A hard bony mass was felt in the right renal region, but it occasioned no pain. Nephrectomy was performed (extra-peritoneal operation), and a tumour, extending some distance down the ureter, was found and removed. Recovery was good, and when the patient left hospital the daily excretion of urine was about 45 oz. Clinically the case was interesting from the large absence of symptoms; there was not even uneasiness, and there was no vomiting or wasting. When in hospital the urine was quite clear. The diagnosis was based on the hæmaturia and the presence of a nodular swelling. Microscopically it proved to be an adeno-carcinoma undergoing colloid change. The patient is very well now, and follows his ordinary avocation of a miner.

Dr Dewar next showed a patient on whom gastro-enterostomy had been performed for pyloric cancer. He was sixty-four years of age, and had suffered from gastric symptoms (without vomiting) for three years. He was not markedly emaciated; no tumour was at first detected, though it was located later, above, and to the right of the navel. There was much splashing from a dilated stomach. Gastro-enterostomy was performed on June 23, a Murphy's button being used; for four days after, rectal feeding alone was adopted, and twelve days later the patient could eat ordinary light diet. After discharge he continued to improve and put on flesh, and was free from pain for the first time for three years. He can now eat anything. The growth itself was quite irremovable.

Dr Middleton made a few remarks on the case, which had

first been in his ward for medical treatment, and drew attention to the fact that the liver, which was apparently normal at that time, was now enlarged.

Dr Newman also spoke, emphasising the importance of rest to the stomach—an end accomplished by the operation—and its influence in producing some retrogression of the growth.

Drs Rutherford, Edington, and M'Call Anderson also discussed the case.

Dr Newman spoke on Dr Dewar's first case, drawing attention to the rarity of colloid cancer of the kidney. He referred to the great improvement that had taken place in the mortality statistics of nephrectomy for cancer. In 1888 the mortality all over was 70 per cent., it is now reduced to 20 or less. This he considered to be largely due to the more frequent use of exploratory incisions early. Kidney tumours often last long without symptoms, and after removal may not recur for several years.

Dr Chas. Workman drew attention to the fact that the microscopic sections (low power) of the kidney were suggestive of cystic changes, and remarked that there was a tendency now to regard cystic degeneration as really of the nature of a tumour change.

Dr Newman then described a case of severe injury to the thoracic walls with laceration of the thoracic duct and leakage of chyle into the left pleural cavity. The man was admitted to hospital on 17th July; he had been crushed in a coalpit by a heavy piece of rock. The fourth, fifth and sixth ribs were fractured in front and behind, and both clavicles as well; shock and dyspnœa were marked. Soon after the injury surgical emphysema set in, and after its disappearance the left side of the thorax was found dull, as if from fluid. It was tapped several times, and 30, 40, 80, 100, 200, and 110 oz. were removed. The fluid was white, and at first was suggestive of pus, but was found to be very fatty, and to contain no pus; analysis showed it to contain (per 1000) 915 parts of water, 67 of proteids, and 6 of fat. It coagulated on standing. This was obviously due to the existence of chylo-thorax, due to injury to the thoracic duct. It is a rare condition, and is usually due to obstruction, not to injury. The patient is now in fair health, though the clavicles are still ununited.

Dr Adams and Dr Geo. Middleton spoke, and Dr Newman replied, laying stress on the fact that in true chylo-thorax the fluid coagulates.

Dr Leslie Buchanan read a short paper on "Amblyopia from Non-use." It is not infrequently noticed in connection with squint, and is characterised by a dimness of vision commencing

in childhood, and progressive, but where there is no ophthalmoscopic change, and where correction of errors of refraction causes little improvement in sight. Since it may precede squint, or be independent of it, it is certainly not due to strabismus alone. It may be assumed that it depends essentially on defective education of one eye in childhood. Binocular vision is always gained slowly (2-3 years usually); and if one eye lag behind, it may, as it were, give up trying: the tendency then is to use the better eye; this becomes a habit and is confirmed and the defective eye becomes amblyopic from disuse. The treatment is re-education. Dr Buchanan cited an illustrative case from his own practice, in which a young woman of twenty-one, with concomitant squint, had normal vision in the right eye, while in the left it was only $\frac{1}{200}$. The squint was treated by operation, and then education commenced, with the result that in one month the left vision had improved to $\frac{1}{20}$; in two months to $\frac{1}{7}$; while after eighteen months, with lenses, it was $\frac{2}{3}$ N.

Drs Workman and Rowand and the President discussed the paper, and Dr Buchanan replied.

The Glasgow Obstetrical and Gynæcological Society

MET for the first time this session on October 22nd. The meeting was devoted to the Presidential Address, which was delivered by Dr Nigel Stark, who took as his subject "The Present Position of Obstetrics and Gynæcology contrasted with that One Hundred Years Ago." After thanking the Society for the honour conferred upon him in electing him to the chair, the President referred to the enormous progress made in all departments of life since the end of the eighteenth century, and in none, he said, had this been more marked than in the domain of medicine. What can be said, he asked, of those branches of it which claim our special attention? Obstetrics was so practical a part of medicine that it was largely free from speculations and theorising—constant features in most of the other branches of the healing art. Indeed, up to a century ago the man who chiefly practised midwifery was looked upon with contempt. Reference was made to the teaching of midwifery in Glasgow at the end of the eighteenth century, this work being done partly by the University professor (who also taught Botany!) and partly by extra-mural teachers. Later, a very successful teacher was Dr John Burns, whose "Practice of Midwifery," published in 1815, achieved a great success. One is struck in reading it by the baldness of statement and the absence of

illustrations. Auscultation of the fœtal heart was unknown, and abdominal manipulation was little practised. A vaginal examination was seldom performed unless urgently required, and no directions are given for cleansing the *accoucheur's* hands. Although the mechanism of labour had been studied, there was little mention of it in a student's text-book, and few practitioners therefore knew how to conduct labour in its early stages in cases of slight pelvic deformity. The enormous strides following the introduction of anæsthetics, antiseptics, proper forceps, and other modern obstetrical instruments completely revolutionised obstetrics in the latter half of last century.

As regards Gynæcology, literature on this subject was conspicuous by its absence. Burns gave one chapter to it in his book, describing various diseases, pseudo-diseases and symptoms. In 1802 the diseased ovaries had never been removed, and the first ovariotomy was done by M'Dowell of Kentucky in 1809. Indeed, it may be said that a century ago Gynæcology had no existence. Yet to-day it is one of the most vigorous and important branches of medicine and surgery, with its own most copious literature, its societies and congresses. The President further referred to the advances made in the diagnosis and treatment of ectopic gestation, to the modern technique of Cæsarian section, and the other notable advances in operative abdominal work. As yet, unfortunately, they had no further means of dealing with uterine cancer than those available in other parts of the body, and these, alas! too often proved futile.

The mortality of the operation of vaginal hysterectomy was now reduced to from 3 to 7 per cent., but the ultimate results were still so bad all round that many men were inclined to give it up in despair. Till the day comes when the precise nature, origin and prevention of cancer are known, attention must be specially directed to the clinical observation of the disease, and the detection of its earliest symptoms. In concluding, Dr Stark drew the attention of the members of the Society to the still prevalent high death-rate due to puerperal fever, a catastrophe which was in every way preventable.

The Glasgow Southern Medical Society

THE opening meeting for the session 1902-03 was held on October 2, the retiring President (Dr James Stewart) in the chair. The chief business was to receive reports from the Treasurer and other officials, and to elect office-bearers. Dr Duncan MacGilvray was chosen as President, while Dr James Finlayson was elected Honorary President.

THE second ordinary meeting was held on October 16, and took the form of the annual dinner. The Society met in the St Enoch's Hotel, the chair being occupied by Dr MacGilvray (President), who was supported by Dr T. Richmond and Dr Fraser Orr (croupiers). The President gave an interesting sketch of the history of the Society from its inception in 1844, with a membership of 8, till the present time when its roll embraced 300 names. The late President (Dr Stewart) proposed the health of the Honorary President, Dr James Finlayson, who made a felicitous reply.

Forfarshire Medical Association

THIS Society met in the University College, Dundee, on Friday, October 10th, at 4 P.M.—Dr A. J. Duncan in the chair.

Dr A. M'Gillivray showed two cases of argyrosis following the use of protargol in conjunctivitis.

Mr Greig showed a case of mycosis fungoides, a man, aged forty, who had the disease markedly developed over the back of the chest. It had existed for at least four years. In 1899 a large ulcerated patch was excised without local recurrence. The other patches had however increased, and presented at the meeting a very striking and typical appearance. There was no history of syphilis and antisyphilitic treatment had produced no improvement when it was tried before operation. The so-called premycotic stage was well marked, and the case presented no subjective symptoms. Photographs of the patient taken some months before were shown.

Dr Fraser showed several specimens.

1. Intestine and mesenteric glands from a case, a boy, admitted to the infirmary with symptoms of acute intestinal obstruction, which were shown, post-mortem, to be due to adenitis of the mesenteric glands.

2. Intestines, kidneys and lungs from a case of acute septicæmia. These showed numerous hæmorrhages over the organs.

3. Stomach, liver and heart from a case of cancer of the stomach in which the disease was situated in the lesser curvature. There was secondary infiltration in the liver and the glands on the posterior abdominal wall. The heart was of interest in that it showed a patent foramen ovale.

Professor MacEwan read notes of a case of acute intestinal obstruction from volvulus of the cæcum.

The patient, a coachman, aged fifty-two, in March 1899, had all the symptoms of acute obstruction with stercoraceous

vomiting. On opening the abdomen the obstruction was found to be due to a volvulus of the cæcum, caused by the rotation of an abnormal mesentery. The intestines, which were enormously distended, were evacuated before the cause was made out. There was a gangrenous patch on the cæcum. The bowel was stitched to the wound in the abdominal wall. He resumed his work wearing a pad over the fistula. In July of this year the patient was admitted to the infirmary for the treatment of the fæcal fistula. Mr Greig Smith's method was adopted, and the fistula successfully closed.

Professor MacEwan next dealt with the rarity of volvulus as a cause of intestinal obstruction, and referred to the literature on the subject. The sigmoid was the most common part for volvulus to occur. He had met with one other case of volvulus, and in that the sigmoid was the part affected. Vomiting, which was marked in this case, was not the most usual symptom.

Mr Greig read notes of a case of intestinal obstruction due to enteric intussusception. The case was that of a carter, aged eighteen, who had never been very strong, troubled with constipation, and three months before had vomiting, with slight abdominal pain and some bleeding when the bowels moved. On August 13th he had a sudden severe abdominal pain, and on the third day passed a blood-stained motion. He refused to go to the infirmary till the fifth day of his illness, when Mr Greig found him in a very serious condition, and operated without delay The condition was found to be due to an intussusception of the lower end of the jejunum. The bowel was enormously distended and ruptured in the slight manipulation. The affected portion was resected, and an end to end anastomosis completed as rapidly as possible, but the patient succumbed as the wound was being sutured. The specimen was shown.

Mr Greig pointed out that this, though not the commonest form of intussusception, was the commonest variety of that intussusception, viz., a descending intussusception of the jejunum.

Mr Greig also gave notes of a case he had operated on last May. The case was that of a child, aged nine months, suffering from an intussusception of three days' duration. On the operation it was found to be of ileo-cæcal variety. The tumour was very large, and was only with care reduced after the intestines were out of the abdominal cavity. The child never recovered from the operation, and died in fifty-two hours. The post-mortem showed that no reduction of the large intussusception had taken place.

Dr Halley said that one point brought out by these two cases of intestinal obstruction was the treatment of such cases. The first case (Professor MacEwan's) seemed a more favourable

one for resection of the bowel than the second case (Mr Greig's), in which resection was the treatment adopted. Dr Halley thought very definite reasons for the treatment adopted in cases of intestinal obstruction should always be stated. In the treatment of intussusception in children, he thought that more successful results would be obtained by cœliotomy in all cases, rather than inflation, or both combined.

Dr Mackie Whyte referred to three cases of intussusception in children, and stated that one had died because the treatment was adopted too late, the second recovered after treatment by injection, and the third recovered after inflation. He had also seen a case in an adult where recovery had followed the passage of the intussusception.

He considered that pain, a sausage-shaped tumour and passage of blood were the usually well-marked symptoms.

Professor MacEwan said that uncertainty as to the condition of the bowel in his case was the reason for the treatment he adopted. He considered it gave the patient a better chance, and lessened the danger from collapse. He agreed that resection of the bowel, in Mr Greig's case, was too serious treatment to adopt considering the condition of the patient.

Mr Greig replied that he performed resection of the bowel because the lesion was so high up. If he had stitched the bowel to the abdominal wall, a very large part of the bowel would have been rendered useless for the time being.

He was against using a Murphy's button so high up in the bowel. Regarding intussusception, he spoke of a case where there was recovery after the passage of the intussusception.

In children he considered inflation good treatment if carried out early, and better than inflation followed by cœliotomy.

Dr M'Gillivray showed an instrument for pupillary measurement which he had got made, and found very serviceable.

Fifeshire Medical Association

AT a meeting held within the Duncan Institute, Cupar-Fife, on Friday, 26th September, the minutes of last meeting having been read and approved, the President—Dr Niven, Newburgh—gave an address on "The Feeding of Infants." He deplored the lack of common sense in mothers, leading to infants being fed too early and too frequently. An interval of three to four hours, even from the beginning, is advisable. Mothers should be carefully dieted. Galactogogues are not of any use. During the first four months of pregnancy lactation may safely be permitted. In artificial feeding the only reliable food is cow's milk, even up

to ten or twelve months. The Gordon-Walker laboratories can only be made use of in large cities, but there they may be of immense benefit, and the action of the municipality of Battersea in providing similar laboratories was approved. Milk from the herd is more to be depended upon than that of a single cow. Sterilised milk is distinctly less nutritious than uncooked. The principal danger in artificial feeding lies in the use of dirty bottles. All artificial foods are more or less bad, their principal food value lying in the milk they contain. In addition they either contain cereals, which are indigestible for young children, or cane sugar, which is not so good as milk sugar, the former forming alcohol, the latter lactic acid. The presence of glucose probably weakens digestive power in the same way as does peptonised food.

The President having invited discussion—

Dr Morris considered that there is too much artificial feeding, and that breast feeding is often done in too great a hurry. He had the supply of milk put up in certain dishes, approved of sterilised milk, and uses for this purpose an apparatus of Gardner's.

Dr Nasmyth would have the duties of maternity taught at school as domestic economy. He believes in sterilised milk, but wants further to have clean milk provided, and would take measures to keep away the dust.

Dr Strachan for thirty years has given perfectly pure milk, as fresh as possible, and objects to the addition of water. He regards milk as a living vital fluid, gives it as fresh as may be, and preferably from the same cow, feeding every three hours from birth.

Dr Laing emphasised the duty of mothers to nurse their offspring. He has found difficulty in getting infants to digest pure milk, and has had to dilute it, preferably with whey. He finds that a single cow's milk varies much more than that of a herd.

Dr Spence endorsed everything said by Dr Niven, but after five months gives pure milk. Barley water is the best diluent. He uses the "Humanised" Aylesbury milk in some cases, and has a method of humanising, which consists in letting the cream rise, syphoning off half the underlying milk, converting this into whey, adding this to the rest, and sterilising the whole.

Dr Curror does not approve of sterilised milk, nor of undiluted milk. He thinks that adenoids are more common amongst hand-reared infants, and next to them amongst breast-fed infants which have been allowed to suck the fingers.

Professor Harris had experimented upon the consistence of curd of milk, and finds that it varies considerably, being more

friable in peptonised milk. He believes that lime-water serves a further purpose than merely that of an antacid, as it also acts as a solvent of caseinogen. He approved of sterilised milk.

Dr Constable proposed a hearty vote of thanks to Dr Niven for his interesting and practical paper, which was heartily accorded, and to which Dr Niven suitably replied.

The following list of office-bearers was then put to the meeting, and approved :—

President—Dr Lesslie Curror, Kirkcaldy.
Vice-President—Professor Musgrove, St Andrews.
Hon. Secretary—Dr C. E. Douglas, Cupar.
Hon. Treasurer—Dr Macdonald, Cupar.
Council—Drs Crichton, Macintosh and Henderson, Kirkcaldy.

The Hon. Treasurer then gave in his financial statement, showing a balance in hand of £9, 14s. 5d.

Dr Morris then proposed that a portion of the balance be devoted to subscription to a medical charity, and, on the motion of the Secretary, it was resolved to subscribe a sum of three guineas to the Royal Medical Benevolent College, Epsom.

This concluded the meeting. The members then dined together in the Royal Hotel, Dr Niven occupying the chair. The Rev. Mr Scoular, Dr Halley of Dundee (Hon. Secretary, Forfarshire Medical Association), and Dr A. G. Macdonald, were present as guests.

Editorial Notes and News

Chauvinism in Medicine PROFESSOR OSLER'S utterances are always interesting, and his recent address upon Chauvinism in Medicine, delivered to the Canadian Medical Association at Montreal,[1] is an excellent example of the lay sermon. At the outset Professor Osler emphasises four distinctive features of our profession—its noble ancestry; its remarkable solidarity; its progressive character; its singular beneficence. "Search the scriptures of human achievement and you cannot parallel in beneficence anæsthesia, sanitation and all that it includes, and asepsis—a short half century's contribution towards the practical solution of the problems of human suffering, regarded as eternal and insoluble." Now the definition of Chauvinism is "a narrow, illiberal spirit in matters national, provincial, collegiate or personal." What then has Chauvinism to do with Medicine? It should have little enough, surely, but,

[1] "Chauvinism in Medicine," by William Osler, M.D., F.R.S, *The Montreal Medical Journal*, Sept. 1902.

alas, even the most liberal of professions may fail to save men from the sins which so easily beset them ; and few of us, if any, are free from some degree of prejudice, bigotry and intolerance. Hence Professor Osler's pointed remarks, as he deals with his subject under the headings of nationalism, of provincialism, and of parochialism in medicine, should come home to all who read them, and doubtless will, if not in proportion as they have need of them, then in proportion as they love their profession and desire to walk charitably therein "as men and reasonable creatures of God."

Parochialism in Medicine is perhaps the variety of Chauvinism which it is most difficult to escape, and it appears in two main forms. The first is collegiate Chauvinism, and is manifest in the narrow spirit too often displayed in filling appointments, and in the want of generous appreciation of work done in other places. The second is the personal form—Chauvinism in the unit, in the general practitioner. The practitioner should realise more fully the "need of a life-long progressive personal training ; and, secondly, the danger lest in the stress of practice he sacrifice that most precious of all possessions, his mental independence." "In the fight which we have to wage incessantly against ignorance and quackery among the masses, and follies of all sorts among the classes, *diagnosis*, not *drugging*, is our chief weapon of offence." The physician then needs skill, knowledge, confidence, if he is to do his work as a man and not as an automaton ; and wherever his work may lie, he requires culture also, lest he forget that "Man does not live by bread alone." On all these needs Professor Osler has something to say, and we commend his remarks to all who would not be bound in any too narrow bond of professional habit. "With our history, traditions, achievements and hopes, there is little room for Chauvinism in Medicine. The open mind, the free spirit of science, the ready acceptance of the best from any and every source, the attitude of rational receptiveness rather than of antagonism to new ideas, the liberal and friendly relationship between different nations and different sections of the same nation, the brotherly feeling which should characterise members of the oldest, most beneficent and universal guild that the race has evolved in its upward progress—these should neutralise the tendencies upon which I have so lightly touched."

The Services

PUBLIC attention has been of late devoted to the deficiencies of the army medical department, and there was, we believe, a general opinion that the naval medical service, as we hope the navy as a whole, was all right.

But it seems that this is not so, and that the medical department of the navy is by no means so thoroughly equipped as its heads would like to see it. Not enough men, and not all of these the right stamp, is the complaint which has reached us.

With the hope of improving matters, the Director-General has issued copies of "Regulations for the Entry of Surgeons for Temporary Service in the Medical Department of the Navy," which we commend to the consideration of enterprising young graduates. Candidates must be registered practitioners, not over forty years of age, and must produce certificates of good character. They must engage for six months certain, but the liability to serve is limited to five years. Subject to the convenience of the service they may retire on giving two months' notice, and their appointment may be terminated in the same way. They will rank as surgeons. The pay is £401, 10s. a year. The mess charges are only about two shillings a day, and there are adequate allowances when employed on shore.

Copies of the regulations may be obtained from the medical department of the navy at the Admiralty Office.

WE trust that the other reforms of the War Office are going on as efficiently as we have good reason to know that those of the medical department are; if so, they are going on as quietly. At the recent examination the success of the new system was demonstrated by the coming forward of nearly three times as many candidates as there were vacancies, a very striking contrast to the experiences of recent years, when there have rarely been sufficient candidates to fill the vacancies.

The medical school has been transferred to London as a whole, the Indian medical department at the last moment deciding to throw in its lot with the R.A.M.C. A happy arrangement has been made by utilising the laboratory buildings of the Royal Colleges, which were something of a white elephant to their proprietors.

The strength of the service is to be increased by no fewer than one hundred officers, so as to absolutely ensure the six months' study leave after five years' service, which arrangement, by the way, has already come into actual operation.

Further developments may shortly be expected, and though it may not be possible to make the army medical department perfect, the authorities are evidently sincere in their desire to improve the conditions of the service, and being unhampered, as they presumably are, by society and petticoat influence, we believe that there is good prospect of their attaining the much-desired "efficiency" in the Army Medical Department.

Preliminary Education.

WE are not so concerned as some are as to the shortcomings of the Medical Preliminary Examination. Statistics showing that we are a little higher than the chemists, and a little lower than the chartered accountants, are possibly to some very alarming, but they leave out of account the very important fact that the preliminary education of the medical student does not cease with the passing of his preliminary examination, whereas with these other professions it does.

We do not discuss now the question whether the subjects of Botany, Zoology, etc., should or should not form part of the Medical Curriculum proper, but simply emphasise the fact that, for some time after passing his preliminary, the medical student is engaged in the study of subjects which must be regarded as part of a liberal education. The widely circulated statement that medical students are not so well educated as most of their middle-class patients is, in our opinion, entirely unjustified, and would never have been made by one thoroughly familiar with the subject of Medical Education.

IT is not universally known that in the United States of America a licence in one State does not entitle the holder to practise in another. At present there is an agitation in favour of reciprocity going on, and conditions are being drawn up defining the minimum requirements.

In view of the discussion of the subject of preliminary education which is to come before the General Council at its coming meeting, it may be of interest to give the minimum standard of preliminary education which has been approved by certain State Boards.

MINIMUM STANDARD OF PRELIMINARY EDUCATION.

Required under Reciprocity Qualification No. 1.

A certificate of graduation from an approved and reputable high school, academy, college, or university, with the following minimum requirements :—

Group I.—English Language.—(*a*) English Grammar; (*b*) Rhetoric and Composition.

Group II.—History.—(*a*) History of the United States, as presented in McLaughlin's "History of the American Nation," Johnston's "History of the United States," or equivalent text. (*b*) General History, as presented in Myer's "General History," or equivalent text. Greek and Roman History or English History will be accepted as a substitute for General History.

Group III.—Mathematics.—(*a*) Algebra—Fundamental rules,

Fractions, Simple Equations, Involution and Evolution, the Calculus of Radicals and Quadratic Equations, as given in Onley's Complete School Algebra, or Beman and Smith's Elements of Algebra, or some equivalent text. (*b*) Geometry —Plane Geometry as given in Beman and Smith's Plane and Solid Geometry, or equivalent text. (*c*) Plane Trigonometry, as given in Wentworth's Trigonometry, or equivalent text.

Group IV.—Natural Sciences.—(*a*) Physics, as presented in Carhart and Chute's Elements of Physics, or an equivalent text. (*b*) General Biology, or Botany and Zoology, as presented in Sedwick and Wilson's General Biology, or Spaulding's Introduction to Botany and Kingsley's Comparative Zoology. These courses will be accepted only when accompanied by laboratory work. (*c*) Chemistry, as presented in Freer's Elementary Chemistry, or an equivalent amount of work in Remsen's Introduction to the Study of Chemistry.

Group V.—Modern Languages.—(*a*) German or French—The applicant must be able to read French or German. This requires, for one not born to one of these languages, two years of school work.

Group VI.—Latin.—(*a*) Grammar; (*b*) Prose Composition; (*c*) Reading—Four books of Cæsar's Gallic War.

Also the number of hours to be devoted to the various subjects of the medical curriculum proper.

MINIMUM STANDARD OF MEDICAL EDUCATION.

Required under Reciprocity Qualification No. 1.

Lectures and Teaching.—30 hours in Electro-Therapeutics; 160 hours in Physiology; 100 hours in Pathology; 80 hours in Histology; 200 hours in Practice of Medicine; 100 hours in Obstetrics; 60 hours in Bacteriology; 15 hours in Medical Jurisprudence; 160 hours in Anatomy; 160 hours in Chemistry and Toxicology; 130 hours in Therapeutics; 30 hours in Hygiene; 200 hours in Surgery; 30 hours in Gynecology; 48 hours in Diseases of the Eye and Ear; 100 hours in Pharmacology.

Laboratory Work and Demonstrations.—240 hours in Anatomy; 120 hours in Pathology; 100 hours in Histology; 120 hours in Bacteriology; 36 hours in Obstetrics; 60 hours in Eye and Ear; 180 hours in Physiology; 180 hours in Chemistry and Toxicology; 200 hours in Surgery; 120 hours in Practice; 32 hours in Dermatology; 120 hours in Gynecology.

The medical course to cover a four years' course of not less than six months in each year, no two courses to be taken in one year, and the beginning of the fourth or final six months of such

course shall be dated from October preceding the year of the final examinations for the degree of M.D.

It is evident that it is not only the Professors of Scottish Universities who think that numerous hours should be devoted to systematic teaching.

Voluntary Notification.

WE confess we do not understand the circular just issued by the Public Health Committee of the Edinburgh Town Council to the profession in Edinburgh. "Precise information as to the amount of phthisis in the City" is most desirable, but before we can intimate our approval of the proposal we should like information on the undernoted point. *Is this notification to be with, or without, the consent of the patient?* If only with, and if it is expected that all patients will consent to the notification (a necessity for the precision aimed at), then clearly the City is ripe for Compulsory Notification, which should be adopted forthwith.

If the proposal is that medical practitioners should give this information without the consent of the patient, we can only express our surprise that the Public Health Committee should have the assurance to make such a suggestion to the profession.

We would advise all those concerned to wait for this information before taking any action on the circular.

Physical Training in Scotland.

THE Royal Commission on Physical Training (Scotland), of which the Earl of Mansfield is chairman, has for some weeks past been holding sittings in London, Edinburgh and Glasgow. Evidence has been obtained not only from instructors in physical training in England and Scotland, but from the head-masters of public schools, school inspectors, members of school boards, representatives of the army and members of the medical profession. The stream of facts and opinions laid before the Commission has already swollen to considerable dimensions. Naturally the witnesses look at the question from very diverse points of view, but there is a very strong consensus of opinion as to the real value of physical training in the education of children and young people, especially in the promotion of health and good physique. Many of those examined claimed that the benefits of physical training do not end with improved bodily development, but include a stimulation of the intellectual work of the school, the promotion of obedience, and increase of *esprit de corps*. As to the particular kind of physical training most useful for children, there was more difference of opinion. Out-door games, gymnastics and drill all have their advocates,

and one aim of the Commission must be to determine the relative value of these for different classes of children. The idea that drill may foster the so-called military spirit has evidently been very much in the mind of some of the members of the Commission, and questions on this subject have elicited an interesting variety of opinion. Some of the witnesses would have the drill as little of a military character as possible, others were quite of a contrary opinion. General Ian Hamilton, for instance, speaking in favour of military drill, took the high ground that the army is the only popular organisation outside the Church which continued to give a silent denial to the assumption that wealth is the supreme object of existence.

The medical evidence, and especially evidence on the value of a medical inspection of school children, has been of much interest and deserves fuller consideration than we have space for at present.

Opening of the Winter Session in Glasgow.

MOST of the classes at the University met on Thursday, October 16, and in a few instances inaugural addresses were delivered. Two new members of the Professoriate met their students for the first time, viz., Professor Robert Latta and Professor Graham Kerr.

At St Mungo's College on the same day, a formal opening took place under the presidency of Mr Hugh Brown, Chairman of the School. There was a good attendance to hear Professor Galt's address on "Methods of Study."

The winter session at Anderson's College was inaugurated on October 17, by an address delivered by Professor William Smart, D.Phil., of the University. Dr Smart took as his subject "What is a profession as opposed to a trade?" and delighted a large gathering of ladies and gentlemen by his eloquent, witty and suggestive oration. A pleasing feature was the presence of the Principal of the University on the platform and of several University professors in the audience. We trust this indicates the establishment of very kindly feelings between the venerable institution on Gilmore Hill and the more humble college near its gates.

Gynæcological Surgery.

WE have heard complaints of gynæcologists trespassing beyond their special territory, but we have never seen such a candid confession of it as in the report of the Fourteenth Annual Meeting of the American Association of Obstetricians and Gynæcologists, held in September. Among the papers read were the following:—Removal of the Gall Bladder through the Lumbar

Incision; Drainage in Abdominal and Pelvic Surgery; The Irrational Starvation Treatment of Appendicitis; Some Cases of Appendicitis, and the Lessons they Teach; Four Cases illustrating the Difficulty of Diagnosing Appendicitis; Perforating Ulcer of the Duodenum; Peritoneal Tuberculosis; Surgical Treatment of Perforated Gastric Ulcer with General Infection of the Peritoneal Cavity.

There were twelve other papers with more definitely gynæcological titles; while a thirteenth is less easy to place as it is entitled, "Our Shortcomings: let us reason together."

Golf.

THE Autumn Meeting of the Royal Colleges Golf Club took place at Gullane on October 10th. The day was blustery, and several cards were torn up. The Argyll Robertson Scratch Medal was won by Mr Cotterill with a score of 84, which was two higher than it would have been but for a lost ball at the last hole.

The President's Prize was won by C. J. Lewis with a score of 90 less 8 = 82, and W. A. Finlay and Boyd Jamieson tied for the Chiene Cup.

The "Haskell" was much in evidence, and one of the members added to his popularity by distributing samples gratis in the train on the way down. The Royal Colleges do not propose to modify their rules on account of this new invention.

The Society of Medical Phonographers.

THIS Society will hold its next Annual Shorthand Examination early in May, 1903. Two prizes will be offered, each of the value of £5, one for first-year students and one for students of more than one year's standing. The competition will be open to any registered medical student in the United Kingdom who has not taken a first prize at one of the Society's previous examinations. It will be held simultaneously in London, Edinburgh, Dublin, and at any provincial medical centre in the United Kingdom at which not fewer than three candidates shall offer themselves.

Intending candidates should send in their names as early as possible to Dr P. G. GRIFFITH, Bonhams, Farnborough, Hants, who will furnish them in return with a detailed prospectus of the examination.

The latest date for receiving entries will be April 15th, 1903.

DR J. B. MATTISON, Medical Director, Brooklyn Home for Narcotic Inebriates, offers a prize of 400 dollars for the best paper on the subject:—

"Does the habitual subdermic use of morphia cause organic disease?

"If so, what?"

Contest to be open two years from December 1st, 1901, to any physician, in any language.

Award to be determined by a committee: Dr T. D. Crothers, Hartford, Conn., editor *Journal of Inebriety*, chairman; Dr J. M. Van Cott, Prof. of Pathology, Long Island College Hospital, Brooklyn; and Dr Wharton Sinkler, Neurologist to the State Asylum for the Chronic Insane, Philadelphia.

All papers to be in the hands of the chairman, by or before December 1st, 1903: to become the property of the American Association for the Study and Cure of Inebriety, and to be published in such journals as the committee may select.

Recent Literature

CRITICAL SUMMARIES AND ABSTRACTS

MEDICINE

FUNCTIONAL DIAGNOSIS IN KIDNEY DISEASES

By HARRY RAINY, M.D., F.R.C.P.,
Edinburgh

DURING the last few years, in consequence of the increasing recognition of the fact that a mere chemical and microscopical examination of the urine is a very inadequate test of the capacity of the kidneys to perform their necessary task, a number of supplementary methods have been devised in the hope of enabling the physician to attain to more definite results both in diagnosis and in prognosis. The advances of surgery in the field of operative interference with the kidneys have still further stimulated research in this direction, as it is clearly of vital importance for the surgeon to be assured of the integrity of one kidney before he proceeds to operate on the other.

These new methods, which are only used in conjunction with the older ones, and especially with a careful determination of the total nitrogen elimination, may be placed in four categories. One may, in the first instance, give various drugs and observe their elimination by the kidneys; secondly, one may induce, by the administration of certain drugs, abnormal forms of chemical activity in the cells of the kidney; thirdly, one may determine the molecular concentration of the urine and of

the blood; and lastly, one may investigate the toxicity of the urine.

1. Many drugs are excreted by the kidney in a recognisable form, and of these a few are able to be estimated quantitatively in the urine, although it is extremely difficult to arrive at more than an approximation to the exact quantity eliminated. Some, such as iodide of potash and various other salts, appear to escape through the glomeruli, others are discharged by the epithelium lining the tubules. Of the latter, that which has been most commonly employed is methylene blue, which was proposed in 1897 by Achard and Castaigne. If 0·05 gm. dissolved in 1 c.c. of distilled water be injected somewhat deeply into the muscles, it reappears in the urine either as a chromogen or as a greenish-blue pigment. The chromogen alone appears when the urine has an alkaline reaction, but its presence is immediately revealed by boiling the urine after the addition of a few drops of acetic acid. The points to be observed are the time of appearance of the dye, which in health should be recognisable in urine passed half an hour after the injection; the time of its disappearance, which is usually about thirty-six to forty hours after the injection; and the total amount excreted by the kidneys, this being estimated by colorimetric methods, which are apt to be uncertain and inaccurate. In the case of old people, a longer period than half an hour usually elapses before the urine begins to be coloured, and the duration of excretion is somewhat more protracted; but if the delay in the dye's appearance exceeds an hour or an hour and a half, it indicates a decided loss of renal permeability. It is further to be remembered that, if even a small quantity of healthy renal tissue has survived, the dye will pass through this, and will be present at the normal time in the urine. It is therefore desirable to determine, with such accuracy as may be, the amount excreted in the first twenty-four hours after injection, and Achard finds that in this period a normal individual passes about 25 milligrammes.

Clinical experience has proved that whilst interstitial nephritis greatly retards the excretion of methylene blue, the acute parenchymatous type, and also the waxy kidney, may permit it to pass as freely as the normal organ. There are, besides, many fallacies in the employment of this test, and consequently it has been to some extent replaced by others which appear to be more accurate.

2. The drug most commonly employed to induce abnormal chemical activities in the kidney is phloridzin. Its administration produces a harmless temporary glycosuria, the sugar being formed in the kidney itself, and only when the cells of the

secreting tubules are healthy. Where these have lost their functional activity no glycosuria develops, and in either case no hyperglycæmia can be detected. A small dose (5 milligrammes) of phloridzin is subcutaneously injected, and in about a quarter of an hour sugar begins to appear in the urine. The glycosuria reaches its maximum a short time later, and disappears in the course of a few hours. At the time when the excretion is at its height, samples of urine are synchronously secured from the two ureters, and compared with respect to the quantity of sugar present in each. The urine proceeding from the damaged kidney contains less sugar than that derived from the healthy one, and the reduction in excretion is regarded as a fairly accurate measure of the degree of impairment of the diseased organ. The test is valuable in determining the relative activities of the two kidneys, but is of comparatively little use in cases of bilateral disease, as the amount of sugar discharged by healthy kidneys thus tested varies so widely that it is impossible to fix a limit below which one can assume the existence of renal disease with any degree of certainty.

3. The determination of the molecular concentration of the urine and blood appears at present to give a greater amount of information than either of the foregoing methods. It is most readily effected by "Cryoscopy," *i.e.* by observing the exact freezing-point of the fluid under examination, the physical principle involved being that the freezing-point of any given solvent is lowered in proportion to the number of molecules dissolved in it. Owing to the fact that even in health the concentration of the urine is very variable, the examination of this fluid is chiefly valuable for the comparison of the excretory activity of the two kidneys, the ureteral catheter being employed to obtain the necessary samples; but since the molecular concentration of the blood is in ordinary circumstances remarkably constant, an increase in this concentration may with tolerable certainty be attributed to failure of renal activity, and in fact it supplies a most delicate test for the efficiency of the kidneys.

The details of the process have been carefully elaborated by von Korányi, who has written numerous papers on the subject, many of which have appeared in the *Berliner klin. Wochenschrift*. The exact freezing-point is determined with 10 to 15 c.c. of thoroughly oxygenated blood, in Beckmann's apparatus. In health this freezing-point is found to be situated at $-0{\cdot}56°$ to $-0{\cdot}58°$ C., but in kidney disease it is further depressed; a reading of $-0{\cdot}59°$ C. usually indicating a certain degree of renal incompetence. Where indications of inadequacy are found, it is necessary before arriving at a diagnosis of organic kidney

disease to exclude reflex cases due to unilateral renal pain, and mechanical cases where the normal flow of urine is affected by the presence of abdominal tumours. The method is of special value for prognosis, any real improvement being at once indicated by a return of the freezing-point towards the normal limits; whilst the first warning of impending danger is often given by a lowering of the freezing-point, caused by the accumulation in the blood of substances which should have been eliminated in the urine.

In cases where the activity of the two kidneys is being compared by examining the urine excreted by each, an important supplementary procedure has been suggested by Roth-Schulz and Kövesi, and more recently by Kövesi and Illyes, in which, after the first determination, the patient is instructed to drink a large amount of fluid, and a second determination is then made with the view of ascertaining whether the two kidneys take an equal share in eliminating the excess of water, or whether as in many cases of unilateral disease, the quantity secreted is less, or the elimination retarded on the affected side. This procedure is also of value in some cases of bilateral disease where the ureteral catheter is not used. Thus, in parenchymatous nephritis, after the administration of the fluid, the molecular concentration is not greatly altered, whilst in chronic granular nephritis notable dilution may be observed.

Professor Cloetta has utilised the Cryoscopic method in a most valuable series of experiments, in which he induced artificial nephritis by means of aloin, cantharidine, and chromate of potash. By careful comparison of the molecular concentration of the blood with the nitrogen excretion and the quantitative estimation of the various proteids which appeared in the urine, he arrives at the conclusion that these kidney poisons exert very different influences on the organ, even where the histological appearances that are induced seem practically identical, and that therefore one must not assume that anatomical similarity in the lesions produced is evidence of equal functional derangement in cases of nephritis due to different poisons. As it is well known that ordinary acute nephritis may result from the action of a number of distinct toxic agents, these experiments demonstrate the danger of trusting too exclusively to the quantity of albumin which may be excreted as a sufficient indication of the extent to which the kidney is really damaged.

4. *Toxicity of the urine.*—This method was not "made in Germany," it therefore receives scant justice there. Yet within certain limits it is of distinct value in the investigation of renal disease, as some of the most distressing symptoms arise from the accumulation in the circulation of toxic substances that

should have been eliminated. The method is also of great importance in the study of many diseases where the metabolic processes of the body are seriously deranged.

Attention was first systematically directed to urinary toxicity by Professor Bouchard in 1887, and the best work on the subject has been done in France, where Professor Charrin and others have carried on investigations on the lines which Bouchard indicated.

The method consists in collecting the urine which has been excreted during twenty-four hours, and, after passing it through a germ-proof filter, injecting it slowly into the circulation of a rabbit, until characteristic symptoms are produced. Of these the first to appear is myosis, which gradually increases until the pupil is contracted to a very small aperture, subsequently other and less typical symptoms supervene until finally coma, exophthalmos, and convulsive movements mark the advent of the fatal termination. In order to compare with facility the toxicity of the urinary excretion in different cases special units are employed: one, the "urotoxie," being defined as the quantity of toxic substances required to kill one kilogramme of living tissues; the other, known as the "urotoxic co-efficient," expresses the number of urotoxies produced in twenty-four hours per kilogramme of the individual supplying the toxic fluid. It has been found that in many cases of renal disease the urotoxic co-efficient is greatly diminished, being less than half that of health, whilst in extreme cases it may hardly reach one-eighth of the normal value. On the other hand, during convalescence from some fevers, the value rises to twice or thrice the normal, and thus indicates the strain to which the kidneys are being subjected, and the necessity for shielding them from all needless work.

In summing up the respective merits of the methods which have been detailed, cases must be divided into two groups according as the renal disease is essentially bilateral as in Bright's disease and many ordinary medical conditions, or probably unilateral, and therefore not infrequently amenable to surgical treatment.

In the former case the determination of the molecular concentration of the blood is probably of chief importance, whilst estimation of toxicity stands next to it, though at a considerable interval.

In the latter case, where the secretion of each kidney can be observed separately, cryoscopy of the urine is of very great value, as is also the quantitative examination for sugar after the injection of phloridzin. It is also of importance to recollect that if both methods have been utilised, and yield con-

cordant results, the conclusions arrived at are very greatly strengthened.

LITERATURE.

(1) References to most of the older literature, especially that published in Germany, are given in Casper und Richter's "Functionelle Nierendiagnostik." (Wien, 1901.) (2) On Urinary Toxicity the best references are in Charrin's "Poisons de l'Urine." (Paris, published by G. Masson.) (3) A valuable discussion on the indications for surgical interference in diseases of the kidney, by Thorkild Rovsing, has appeared in *Mitteilungen aus den Grenzgebieten der Med. u. Chir.*, Bd. x. S. 283. (4) Cloetta's paper, referred to above, appeared in *Archiv. f. exp. Patholog. u. Pharmakologie*, Bd. 48, S. 223.

SURGERY

GENITO-URINARY SURGERY

By DAVID WALLACE, C.M.G., F.R.C.S.Ed.,
Assistant Surgeon, Royal Infirmary, Edinburgh

THE swing of the pendulum common in methods of treatment is observable at present in regard to operations for enlarged prostate. Little more than a year ago surgeons were all but unanimously in favour of the suprapubic route, but now it can at least be said that opinion is divided with a tendency towards the perineal route being more widely accepted. Numerous papers have appeared during the last three months in regard to the prostate; and when we consider Dr Parker Syms' statistics along with those of Albarran, undoubtedly numbers and success seem to be on the side of the perineal operation. In a recent number of this journal a summary of Albarran's results was given, and a reference to a full account of his method of operation quoted. Parker Syms has operated successfully, by the perineal route, upon twenty-one patients. He opens the membranous urethra and uses a retractor to bring the prostate well down into the wound, afterwards draining through the opening in the urethra, a drainage tube being retained in position by a stitch. He removes the tube on the fifth to the seventh day, and later treats the case very much as one of external urethrotomy.

From the anatomical side also much has been written recently, but in particular reference may be made to a paper by Albarran and Motz (*Ann. des mal. des org. urin.*, July 1902), in which "the prostatic capsule and the relations of the enlarged gland with the urethra and neck of the bladder" are chiefly studied. To fully appreciate this paper it is necessary that it

should be read, as the illustrations, 46 in number, do much to elucidate the text; but one sentence is interesting in the light of recent statements regarding the relation of the urethra to the prostate. The authors write that "the deepest part of the urethra is completely surrounded by the prostate, and is so fused with it that one can only isolate the urethra by cutting into prostatic tissue."

The treatment of Calculus of the lower end of the Ureter in the Male. — In the *Journal of American Medicine* (August 1902), Dr Young, of Baltimore, directs attention to this subject in an elaborate paper. In 1898 Fenger said, "There is no difficulty in gaining access to the upper three-fourths of the ureter by the oblique lumbar incision. It is different with the lower fourth of the ureter, which is located deep down in the pelvis, and is even held by Le Dentu to be inaccessible. But, as Cabot has pointed out, this portion is also accessible without opening the peritoneum by means of the sacral operation of Kraske." No one has used Kraske's operation, and in 1899 Mr Henry Morris said that no case had been noted of uretero lithotomy for stone impacted in the lower end of the ureter in the male. The apparent rarity of the operation induced Dr Young to report three cases which had been under his care, together with a fourth treated by Dr Finney.

In the first case the stone was impacted at the junction of the ureter and the bladder. The incision to expose the ureter was made from a point above the middle of Poupart's ligament upwards and outwards, passing about one inch from the spine of the ilium, and the operation was extra-peritoneal throughout. After removal of the stone the operator found the portion of the ureter below constricted, and as it was impossible to dilate this part he completely divided it. This was done through an incision on the lateral aspect of the bladder, and the incisions in the ureter and bladder were closed with fine silk sutures. Five months later the patient was perfectly well, and the ureter remained patent.

Dr Young reviews the literature of the subject, and refers to the varied routes by which pelvic ureteral calculi have been reached. He finds that eighteen male patients have been treated.

Nine *intravesical* with six recoveries, three results not stated.
One *perineal* (pre-rectal) recovered.
One *intra-rectal* died.
Seven *iliac* (extra-peritoneal), five recoveries, two died.

Having described the anatomy of the ureter, he points out

that it is not a tube of uniform calibre, but that it presents normally four points of narrowing: (1) just below the renal pelvis; (2) where it crosses the iliac vessels; (3) where it enters the muscular wall of the bladder; and (4) at its vesical orifice. Between these points of narrowing the ureter is dilated in a fusiform manner. These points of narrowing determine the lodgment of calculi, but the commonest sites are just before the ureter enters the bladder wall, and immediately external to the vesical orifice. In 19 cases the calculus occupied one or other of these situations 13 times. He believes the reasons for impaction are intra and extra ureteral. The former is due to stricture of the ureter produced by injury or inflammation, although stricture may be congenital. Extra-vesical causes are commoner in the female than in the male, and are due to pressure by tumours or inflammation of adjacent structures followed by cicatricial contraction. Diagnosis of the condition may be difficult, but if the stone project partially into the bladder the symptoms may be chiefly vesical and simulate those due to vesical calculus. When the stone is just external to the bladder there may be vesical irritation and pain in the penis, but testicular pain has not been noted. Rectal examination is, as would be expected, most valuable, and except in fat subjects a bimanual examination may enable the calculus to be detected. Cystoscopic examination is of great value as the ureteral opening on the affected side may be markedly changed in appearance—hyperæmic and swollen. The Röntgen rays are also valuable and have on several occasions demonstrated the presence of a stone. In the author's opinion a radiogram should invariably be obtained in such cases.

To sum up the operative treatment it may be said: (1) That when the calculus is intravesical, that is, just at the ureteral orifice, suprapubic cystotomy should be performed, the opening dilated or enlarged by division—which can be done with safety—and the stone extracted. (2) In extra-vesical cases the stone is entirely out of reach by the bladder route and should be attacked by the iliac-extra-peritoneal operation. As stricture of the ureter may exist below the site of the calculus the patency of the ureter should be determined at the time of the operation. If a stricture exist it should be dilated or divided. One great advantage of the iliac incision is that it permits thorough examination of the kidney and of the ureter throughout its whole extent. Dr Young's paper is illustrated by numerous diagrams, and, so far as the writer knows, is the most complete account of this recent advance in operative surgery, and serves to place the diagnosis and treatment of a difficult affection upon a satisfactory basis.

OBSTETRICS AND GYNÆCOLOGY

By R. C. BUIST, M.A., M.D., M.R.C.P.Ed.,
Gynæcologist to Dundee Royal Infirmary

A Contribution to the Pathological Anatomy of Abortion.—Dr K. Hegar (*Beitr. z. Geburtsh. u. Gynaek.* Bd. vi. H. 2, p. 147, 1902), making a careful microscopic study of the material from twenty-one cases in the Freiburg Klinik, has endeavoured to see how far they throw light on the question of the fœtal or maternal origin of the abortion. He had the luck to get the pregnant uterus from a patient who had twice aborted in the previous two years, and he was thus furnished with a type with which to compare his other specimens. The patient had four normal labours, an abortion cleared out by curettage for recurring hæmorrhage, and an abortion ending spontaneously; and when she was last admitted the uterine body showed two portions, the larger and harder on the right. She had had continual abdominal pain for two years. Under the erroneous diagnosis of fibroma and pregnancy the uterus was removed. It was at once placed in formol (10 per cent.).

The large and hard right half showed marked general thickening of the muscle layer, but not myoma. In the rest of the tissues there was very little change, except in the deeper part of the compact layer where the decidua was slightly degenerate, the cells pale and with nuclei poorly stained. Round cells were thinly scattered between them. The material from the first abortion showed different characters. One part showed the villi much changed, mostly broad and swollen with the stroma showing loss of nuclei and separation of the connective tissue fibres. The epithelium mostly was relatively well preserved. In the decidua vera the gland epithelium was often distinctly increased and with the protoplasm swollen. In the spongy layer the superficial part consisted of multiple, much branched and dilated glands, while the deeper part showed dilated blood spaces with no distinct decidual cells between them but mostly small and ill-defined spindle cells with pale nuclei. The compacta was fully degenerated, and though the cells could be distinguished they had often no nucleus or mere traces. In one piece of firm white tissue as large as a hazel nut, were unstriped muscle fibres ill-defined and swollen. Between the muscle bundles were large numbers of the small cells separate or combined in giant cells. These by comparison with the sections of the extirpated uterus were recognised as derivatives of the Langhans layer. In the material from the second abortion there were only scraps of decidua. The larger villi were fairly well preserved,

those in the blood-filled spaces degenerating. The decidua reflexa and serotina showed merely an amorphous mass impregnated with blood and fibrin, the vera an apoplexy of an already degenerated decidua. The decidual cells were almost normal at some points, but others were diffusely stained, had ill-defined outlines, and irregular nuclei.

The history threw little light on the matter. There was no history of venereal disease, and both father and mother were otherwise always healthy. The only point of note was the short intervals between the pregnancies. The muscular wall of the uterus was irregularly thickened and the muscle bundles interrupted by strands of fibrous tissue and round cells. The evidence in this first case rests on the contrast of the almost normal uterus with the adenoma-like mass of degenerating glands in the first abortion.

Case 2. The compact layer of the decidua serotina showed collections of round cells and large necrotic areas. The villi were comparatively well preserved, but both layers of their epithelium had a tendency to syncytial characters. Case 3. The decidua vera showed multiplication and dilatation of the glands and also round-cell infiltrations and necroses. Case 4. The small villi showed a tendency to mucoid degeneration of the stroma, but well preserved and proliferated epithelium. In the decidua round cells were evenly distributed and there were no focal infilrations or necroses.

Case 5. The remnants of an incomplete abortion were expelled a fortnight after the patient had been delivered. The larger villi had a fibrous unvascular stroma, defective Langhans layer and fairly preserved syncytium. In the decidua serotina was a profuse and general infiltration of small cells. Case 6. Glandular multiplication in the decidua with focal infiltrations and necroses. Case 7. The villi were non-vascular and their covering layers very irregular, the Langhans cells especially being almost absent. In the decidua the glands were scanty and there were again focal necroses. Case 8. The villi showed some mucoid degeneration and the decidua a general small-cell infiltration, while the decidual cells stained less than normal. Case 9. Circumscribed infiltrations and necroses in the decidua. Case 10. The villi showed degenerative changes, more as they near the decidua, where the decidual cells had lost their form and character, and round cells were profusely distributed. These ten patients thus form a group in which the changes and degeneration are more marked in the decidua, where we have a profusion of round cells sometimes in foci, and the decidual cells have taken a more spindle form and stain poorly. The changes in the villi are less advanced, and increase outwards. These ten

cases constitute the group in which Hegar considered the decidual changes more advanced than the oval.

Case 11. Fœtus with hemicephaly, double talipes and dilatation of the fœtal end of the umbilical cord. In the villi the stroma was mostly degenerated and non-vascular; the epithelium, especially Langhans layer, defective, those towards the decidua being rather less advanced. In the decidua the recognisable glands were scanty and the epithelium loose or awanting. The defects of the fœtus suggest this as the starting-point of the disease. Case 12. Fœtal skin macerated. Left clubfoot. Cord tightly looped round the right foot. Villi much degenerated, often mere stained circles. Decidual glands and cells fairly well preserved but separated by fibrinous masses in the serotina and by serous exudate in the vera. Case 13. Most villi showed mucoid degeneration of stroma and no Langhans layer. Decidual cells well preserved but separated by blood spaces. Case 14. Second successive abortion. Fœtus much macerated. Condition of villi various. Stroma poor or wanting in nuclei, syncytium more defective than Langhans layer. Decidual cells mostly well preserved but separated by strands of fibrin and blood effusions. Case 15. Stroma of villi mostly degenerated and Langhans cells absent. Decidual cells almost normal. Much blood effusion. Case 16. Bloody mole. Decidua almost completely necrotic. Villi very much changed, stroma without nuclei, only a little syncytium and no Langhans cells. Case 17. Bloody mole with both villi and decidua completely destroyed by the blood. Case 18. Bloody mole Villi with scanty remains of syncytium and stroma almost without nuclei. Serotina completely destroyed. Case 19. Previously curetted for interstitial endometrites. Embryo 3½ mm. with ectopia cordis and with a sharp bend and open neurenteric canal in the neck. Marked round-cell infiltration. Villi and decidual cells mostly normal. Diffuse round-cell infiltration in the decidua. Case 20. Twin ovum. Villi mostly in mucoid degeneration. Decidua with well-preserved cells and slight round-cell infiltration. Case 21. Two ova. Villi much degenerated. Decidual cells pale but well preserved.

The case records offer many other points of note than those quoted, but I have thought it better to keep to the one problem. It is evident, as Hegar admits, that the evidence of some of the cases is by no means definite, but the unusual proportion of malformed and twin cases in so small a number is remarkable and suggestive. These cases are apt to terminate prematurely even when the pregnancy progresses further.

In a paper by K. Franz (*Zur Lehre des Abortes., Beitr. z. Geburtsh. u. Gyn.* Bd. i. p. 493) the statistics of Prof. Fehling's

service in Halle are given, and some light is thrown on the etiology. Of 844 cases occurring in four years only 19 were definitely ascertained to be syphilitic. In 45 there was retroflexion, and in one total prolapse of the uterus. The probability of a large proportion being due to endometritis is argued from the fact that only 41 were in primiparæ and that the vastly greater proportion occurred in the second, third and fourth months when endometritis would interfere in the formation of the placenta. Some of the other arguments are too indefinite to put stress on.

More distinct evidence is given in another case from Halle (*Beitr. z. Geburtsh. u. Gyn.*, Bd. iv. p. 389, *Ueber habituellen Fruchttod infolge von Endometritis*), reported by W. Urfey. The obstetric history of the patient, aged 30, was:—(1) Small living child. (2) Child at seven months, dead, placenta by hand. (3) Small child living. (4) Child dead, patient was ill with diphtheria. (5) Last period, 20th December 1897. Consultation, 7th February 1898, from desire to have a live full-time living child. No evidence of syphilis, but treated with syr. ferr. iod., then with pot. iod. No albuminuria. Stirrage, 4th May. Fœtal movements ceased on 19th July. On 26th July a macerated child was born. Microscopic examination of the placenta showed advanced disease of the decidua, with proliferation of the cells, small-cell infiltration and secondary degeneration. In the villi the most marked changes were in proximity to the decidua, while those on the fœtal side were nearly normal.

On the use of potassium chlorate in habitual abortion, Jardine has newly reported three illustrative cases from his practice (*Brit. Med. Journ.*, 1902, ii. p. 1137, Oct. 11). (*a*) Treatment from sixth month after two still-births, delivery at term of a living child and a six month macerated fœtus. (*b*) Treatment from fifth month after three still-births at eighth month, healthy child at term. (*c*) Sixth pregnancy abortive, placenta adherent. Seventh, putrid fœtus. Eighth, potassium chlorate, healthy child at term. Ninth, chlorate, delivery at term. Tenth and eleventh, no chlorate, both abortive.

Herman in the September number of the *Journ. Obstet. and Gyn. Brit. Emp.*, publishes a note on Emmet's operation as a preventive of abortion. He reports three cases:—(1) Three children, then three miscarriages; Emmet operation, living child a year later. (2) Five dead premature children, living seven month child, eight abortions; Emmet operation, ten months later living child at seven months. (3) Three children, then five miscarriages; bilateral Emmet operation, abortion, then

living child at term. Both of these papers are suggestive rather than demonstrative.

DISEASES OF CHILDREN

By JOHN THOMSON, M.D., F.R.C.P.Ed.,
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Food-Atrophy (Athrepsia) in Infants and its Treatment, with special reference to the use of Lechitin.—MM. Combe and Narbel of Lausanne have been engaged in a careful study of this condition in the light of recent research; and they detail their experience of various of the latest forms of treatment in an interesting paper in the July number of the *Archives de Medécine des Enfants*. When Parrot gave the name "Athrepsie" to the marasmus which arises in young infants from dietetic causes, he regarded the condition, on purely clinical grounds, as a distinct disease. The authors hold that this view has been amply confirmed by Baginsky's pathological work, and they look upon all the symptoms in these cases as clinical manifestations of a more or less extensive atrophy of the gastro-intestinal mucous membrane.

Symptoms.—The clinical features of the disease may be divided into three stages:—

1. At first (gastro-intestinal stage), the symptoms are merely those of derangement of the stomach and bowels. These may be intermittent or continuous. This state of affairs is always present at the beginning of these cases, it often exists, however, without ending in athrepsia. How it ends, in any individual child, depends on the power of resistance of his tissues. Should they be in a sufficiently vigorous state, complete recovery will take place before the general health is greatly affected.

2. Later, the inflammatory process extends in the intestine, and secondary changes of an important nature occur in the blood (hœmatic stage). The child now lies with his mouth open, constantly gaping for thirst; but nevertheless he takes less and less to drink, and ends by refusing liquids altogether. The reason of this is that each attempt to swallow sets up a spasm of the pharynx, and this is so exceedingly painful that the child would rather suffer his thirst than incur it. The vomiting becomes more frequent; it occurs by spasm of the stomach, without apparent effort. The motions increase in number and become regularly enteritic in character. They are slimy and very offensive, and contain fragments of undigested

milk-curd. Colic is frequent, and the child utters plaintive cries when the motions are coming, and has straining and tenesmus after they are passed.

In the meantime the blood becomes so inspissated that it circulates badly, and the body gets cold to the touch. The thickening of the blood and lymph also accounts for the dryness of the mouth, and the scantiness of the various secretions. Inside the bowel the fermentation increases to a marked degree, and the altered and inflamed mucous membrane becomes invaded more and more by micro-organisms. The skin is badly nourished, and an erythematous rash often spreads over it. Ulcers may form round the anus, or on the thighs and legs, and boils elsewhere over the body. There is almost complete suppression of urine.

The child's appearance changes, the face becomes pale, the eyes sink in, the nose lengthens and all the features become more prominent than natural. The skin also becomes wrinkled into folds, and the flabbiness and emaciation increase daily. In other cases this pallor is accompanied by a considerable amount of puffy swelling of the face and limbs, even when there is not a trace of albumin in the urine.

If the child dies at this period of the disease, we find on microscopic examination more or less numerous and extensive areas of chronic enteritis in the hypertrophic stage.

3. Finally the cachectic stage, which may be called that of true athrepsia, becomes fully developed with its characteristic grinning, wrinkled physiognomy (*facies Voltaire*). The baby is wasted to a skeleton and all his tissues are shrivelled and dried up, the skin desquamates, the fontanelle is depressed and the cranial bones overlap one another. Occasionally, however, there is still more or less general puffy swelling of the skin, without albuminuria.

In the bowel the swelling of the mucous membrane has by this time given place to atrophy and the digestive symptoms show a great change. The vomiting and diarrhœa cease and the motions become almost normal in number and appearance, but they have a markedly putrefactive odour. Every now and then an enteritic motion may be passed like those of the earlier stage. These come from the parts of the bowel in which the mucous membrane is still in a state of inflammation. The appetite is quite gone and it is only with the greatest difficulty that the baby can be got to take a few spoonfuls of nourishment. As before, this is due to the child's dread of the pharyngeal spasm which always follows attempts to swallow.

The abdomen is indrawn and flabby, and its skin is wrinkled and, when pinched, retains the folds given to it. The bowels

are soft and doughy on palpation. The liver and spleen are either a little enlarged, or are smaller than usual.

The inspissation of the blood increases until the hæmoglobin reaches from 100 to 120 per cent., and the red blood corpuscles number 6,000,000 to 6,500,000 in the c.mm. This condition of the blood is in striking contrast with the child's pallor. The circulation becomes increasingly difficult, defective and slow owing to the altered consistence of the blood. This results in an abnormally low heat-production, although the wasted child ought really to be producing more heat than usual, because, as Charrin has shown, an atrophied baby has, relatively, a far greater extent of surface, and consequently the heat which is generated by each unit of his weight passes off more quickly. The chilliness and subnormal temperature of these wasted babies is similarly accounted for. Further, as the tissues of these infants have to produce more heat than usual in the attempt to maintain their vitality, they become more rapidly consumed than those of healthy babies (*autophagie*) and this gives rise to an acid poisoning with its serious consequences—diminution of bactericidal power and auto-intoxication. That this is so is proved by the examination of the urine. In it we find increase of the phosphates and chlorides, denoting an abnormal consumption of the tissues, and three or four times the usual amount of ammonia, which shows that acid-intoxication is present. There is, however, no albumin. Indol, phenol, scatol, and sulpho-ethers are also found considerably increased. The inadequacy of the intestinal mucous membrane, not only for digestion and assimilation, but also especially as an antitoxic organ, is shown by the co-efficients of auto-intoxication from the digestive tract reaching an amount which is rarely attained in other diseases. At the *post-mortem* examination in these cases we find the bowel pale, thin and, in places, atrophied to an extraordinary degree. In these atrophied areas the epithelium has disappeared and the glands are greatly diminished in number. The atrophy, however, is generally irregular in distribution; and areas of almost perfectly healthy mucous membrane are to be found alongside of others which are very severely atrophied. If a large proportion of the mucous membrane is atrophied the case is rapidly fatal. If, however, the area affected is relatively small, the children may linger for a certain number of years.

Such children grow up thin, pale, and delicate, and are backward in their growth. Under treatment with iron tonics, wine and increase of nitrogenous food they show very little improvement and remain feeble and cachectic until they are carried off by some intercurrent disease. Surprisingly good results may, however, sometimes be obtained, if the intestinal

atrophy and the digestive auto-intoxication are borne in mind and such measures employed as are found useful in babies with athrepsia.

Treatment.—The treatment of athrepsia is that of auto-intoxication from the digestive tract, and its indications are six in number.

1. *Lessen the putrefaction which is taking place in the bowel.*—This may be carried out as follows:—

(*a*) The stomach should be washed out, with an alkaline solution if necessary.

(*b*) The bowel should be irrigated with a solution of tannin (1-5-10 per mille) in order to precipitate any toxin which it may contain. In doing this no pressure is to be used and the reservoir is *never* to be raised above 2 or 2½ inches. The child lies on his right side and the injection should give him no pain or uneasiness. The fluid is passed into the bowel through a tube (from 20 to 40 inches long) which is introduced slowly. From 17 to 42 oz. may be used according to the patient's age, 35 oz. being quite sufficient for a child of 10 years.

(*c*) The bowel is to be frequently disinfected by means of calomel. This is indicated when the appetite fails or toxic vomiting sets in. Two doses, of from ⅛ to 1½ gr. (according to the child's age) are given on an empty stomach at an interval of two hours, and next morning a mild purgative such as castor oil or manna is administered to clear out the calomel.

(*d*) Disinfectant powders are useful, in the interval between the doses of calomel. Should diarrhœa be present, 2½ grs. of tannigen or 3 gr. of dermatol may be given two or three times a day; and if there is constipation, salacetol (¾ to 1½ gr.) is recommended.

(*e*) The feeding must be regulated. As various observers have shown that carbohydrates lessen the putrefaction in the large intestine, it is best to give an exclusively farinaceous diet.

2. *Combat the defective absorption of solid food.*—For this purpose the diet should be constipating, so that the food may remain long in contact with such parts of the mucous membrane as are healthy, and also anti-putrefactive, in order that its absorption there may be favoured.

It is well to avoid milk, white of egg, clear soup, meat and jellies, and to give rather a variety of cereal preparations. Those which the authors specially recommend are malted preparations of oatmeal, barley, wheat, rice and maize; Quaker oats boiled in water with a very little butter, to which a little milk can be added cautiously later; and Liebig's, Keller's, Nestlé's and Benger's foods.

Older children may be given rice, macaroni and vermicelli

cooked with fresh butter and a little salt; and semolina, tapioca, sago and rice puddings cooked with plain water or with milk and sugar, with or without yolk of egg. Meat is only to be added much later and with great care—watching the motions.

3. *Make up for the defective absorption of fluids* caused by the intestinal flux and the deficient absorbent power of the mucous membrane. For this purpose from 1-3 oz. of normal saline solution may be injected under the skin, once or twice daily; or an enema of the same (2½-15 oz.) may be given once, or even twice a day.

4. *Treat the subnormal temperature.*—This is done by hot bottles, the application of cotton wool round the body, with Dr Larat's thermoplasm, and, if necessary, by using an incubator.

5. *Use means to prevent secondary infection.*—The mouth may be cleansed by washes, the skin by sublimate baths (15 to 30 grs. to a bath), and the respiratory tract by pure air in a sunny room free from dust.

6. *Stimulate the secretions and improve the assimilation of the digestive mucous membrane, and the child's nutrition in general.*—Tannate of orexin has proved in the authors' hands to be quite inadequate to increasing the appetite in athrepsia. From cacodylate of soda they have had better results. Injections of ⅛ to ¼ grs. given for two to five days running are found to increase the appetite, improve the nutrition and stimulate the digestive secretion. If it is continued longer, however, it is apt to aggravate the enteritis—probably owing to elimination of arsenic by the bowel. It is, therefore, only safe to give it when there is no enteritis present at all.

What is wanted is a non-toxic drug which will act on the general nutrition; and, as biologists have shown, the general nutrition is under the control of the nervous system. Now, as Charrin has demonstrated that all the symptoms of athrepsia may be produced by poisoning of the nervous system, the idea naturally suggests itself that by giving phosphorus it might be possible to check the morbid processes in the nerve cells and thereby to put an end to the various symptoms we have described above. The necessary amount of pure phosphorus cannot safely be given. Efforts have therefore been made to discover some combined form in which to administer it. Phosphates, phosphites, hypophosphites, biphosphates, lactophosphates, chlorhydrophosphates, etc., have in turn been strongly recommended. The hopes of those who introduced them have not, however, been confirmed either by physiological or by clinical investigation. It has been proved repeatedly that the assimilation of the inorganic phosphorus compounds is very doubtful

and that they are practically inert, almost the whole amount given being recoverable from the stools.

The next step in the search for an assimilable form of phosphorus was the trial of phosphoric acid and the glycero-phosphates. Glycero-phosphoric acid is a constant constituent of the brain cell, so that it seemed quite logical to try it. Subsequent study, however, has shown that the fatty acids and the glycero-phosphoric acid present are merely decomposition products of the organic phosphates, so that they cannot act as food for the nerve cells. It is also found that these cells refuse to assimilate artificial synthetic compounds. The glycero-phosphates are, indeed, absorbed from the bowel to a small extent, and may therefore be brought into contact with the nerve cells. They are not, however, taken up by them, for, although their phosphorus does not appear in the motions, it is to be found in the urine.

We may therefore hold it as proved that if phosphorus is to be taken up by the nerve cells at all, it must be offered to them in the form of a living organic compound. Lecithin is a substance of this sort; and, according to Gautier, every food which contains phosphorus, as lecithin or in some similar form (like yolk of egg, bone-marrow, fish, and the various cereals), is suitable for repairing the loss of nervous substance in the organism. Gautier's work sheds light in various directions, by providing a scientific basis for certain long known facts in dietetics and organo-therapy.

As to its relation to dietetics, we know that phosphorus in a living form is mainly supplied to the organism by the vegetable kingdom. Many plants, especially the cereals, store up the phosphorus which they take from the soil in the form of lecithin. This accounts for the good results generally obtained from a diet of such cereals; and these, both from their containing lecithin and from their anti-fermentative characters, are therefore indicated in athrepsia.

As to organo-therapy, it is more than probable that the undeniable benefit often derived from spermin, cerebrin, bone-marrow, etc., is mainly attributable to the lecithin which they contain.

Lecithin is present in various organic combinations in fresh raw yolk of egg, and this, mixed with saline solution, has been used by Muggia for subcutaneous injection. Under its use he found that athreptic babies gained in weight, and that there was also an increase in the percentage of their hæmoglobin and in the number of their red blood corpuscles. MM. Combe and Narbel have for the past ten years been giving the bone-marrow of young calves by the mouth to young wasted babies, in order

to supply assimilable phosphorus. With this they have had a varying amount of success.

The great effect of lecithin on nutrition has long been known. Danilewsky was the first to experiment with it on the lower animals. He found that tadpoles grew more rapidly when placed in a solution of lecithin. Later, working along with Selensky, he showed that lecithin, when given to puppies, greatly stimulated their growth in length and weight, and also increased the number of their red blood corpuscles. Lastly, Desprez and Ali Zaky performed a series of experiments on adult guinea-pigs. They found that under lecithin the weight increased at twice the usual rate, nearly twice the usual amount of nitrogen and urea were eliminated, and there was also a marked diminution in the elimination of phosphoric acid.

Clinical experiments with lecithin by a number of observers have yielded quite as good results. It has also been shown not to be toxic in any dose. As it seemed, therefore, to fulfil all the therapeutic indications required, the authors were led to try it in athrepsia. So far, although their experience has not been very extensive, it has been most encouraging, and the results have far exceeded their expectation. They obtained the lecithin in sealed tubes, and administered it with the usual precautions by injection into the muscles of the thigh in doses of 15½ grs. every two days. No accidents or inconveniences occurred. In cases of true food-atrophy the following results were always observed :—

1. Marked improvement in the digestive functions. The motions diminished in number, increased in consistence and, in fact, became normal.
2. The general condition improved considerably.
3. The weight increased rapidly.
4. Lastly, there was rapid improvement in the appetite, and improved assimilation.

On Calomel in the Treatment of Children.—Ever since Trousseau first popularised the use of calomel, its value in the treatment of children has been widely recognised. Many physicians, however, have erred in treating it as if it were a sort of universal specific for the ills of early life; while others, and among them certain recent distinguished writers, have spoken as if it were merely a purgative and nothing more. In the August number of the *Jahrb. f. Kinderheilkunde* (Bd. 56, H. 2), Dr Schoen-Ladniewski, of Lemberg, gives an interesting and common-sense account of its chief uses, based on extensive clinical experience.

Apart from its well-known value in ophthalmology and in

the treatment of syphilis, calomel finds its most useful application in certain morbid conditions of the alimentary canal. Here its efficacy depends mainly on its antifermentative and bactericidal properties; and these are probably due to its being changed into perchloride during its passage through the bowel.

As a *disinfectant* of the digestive tract it is useful under various conditions. In flatulent colic, when castor oil, warm irrigations of the bowel, hot baths, hot fomentations, application of soothing ointments to the abdominal wall, and even opiates, fail, calomel will often act like magic. In such cases, from ten to twelve doses of $\frac{1}{12}$ to $\frac{1}{3}$ gr. may be given at intervals of one or two hours according to the severity of the symptoms. In early dyspepsia also with vomiting and green stools it will bring about a cure sooner than any other treatment. In acute indigestion with high temperature and great general disturbance, after a few small doses of calomel ($\frac{1}{6}$ to $\frac{1}{3}$ gr.) the fever will often rapidly disappear and the child sit up and begin to play. In summer diarrhœa, after the vomiting has been checked by washing out the stomach, calomel forms the best treatment. In cases of infantile convulsions arising from dyspepsia it is also invaluable, and acts by checking the fermentation in the alimentary canal. If the exciting cause is not dealt with in some such way, the action of sedatives is necessarily only temporary.

Calomel should never be given merely to empty the bowel, such an end is much better served by ordinary castor oil, enemata or suppositories.

The value of calomel as a diuretic in cases of general dropsy has scarcely, Dr Schoen-Ladniewski thinks, been duly appreciated. In chronic nephritis, with general anasarca, hydrothorax, and ascites, it will often prove successful after digitalis, acetate of potash, diuretin and other drugs have failed. In such cases, he gives from $\frac{1}{3}$ to $\frac{3}{4}$ gr. thrice daily for four days; then it is stopped for four days; and, if the dropsy has not disappeared, it is then repeated for other four days. The explanation of the diuretic action of calomel is very obscure.

New Books and New Editions

A Text-Book of Practical Medicine. By WILLIAM GILMAN THOMPSON, M.D., Professor of Medicine in the Cornell University Medical College, New York City. London: Henry Kimpton. 1900.

THERE are two kinds of text-books on practice of medicine which are useful; the first are large in size, and must be both

comprehensive and exhaustive upon all the subjects discussed; the second are theoretical, or else clinical compends intended for the busy practitioner or student. The volume under review possesses the large and unwieldy size of the first class without the requisite detail, and is too pretentious to belong to the category of the second.

The scope of the volume corresponds with the ordinary large text-book of medicine, but omits skin diseases. The best part is certainly the section on Fevers, although even in this the author's pathological descriptions are hardly in accordance with modern ideas. The statement, for instance, that the skeletal muscles in typhus fever are often granular or waxy, is inadvisable, to say the least of it, while the hopeless confusion of primary and secondary tuberculosis of the kidney is in striking contrast with many admirably written pages. The treatment of the different fevers is full and suggestive, but a more detailed description of inoculation or immunisation in typhoid, plague, yellow fever, etc., would add to the value of the volume.

In the section on the Alimentary System, duodenal ulcers are described as being commonly the sequel of extensive superficial burns, especially of the trunk. The fact is that duodenal ulcers, excepting, perhaps, the slightest degree of superficial ulceration, are very rare, and almost never follow even the most extensive destruction of the skin of the trunk, as we can testify from pathological experience, and the statements made in some text-books are simply quoted from one book to another.

There is an excellent account of Addison's Disease, a subject upon which the author has the right to speak with authority, but it must be admitted, from a careful perusal of the book, that the bulk of the articles upon diseases of the various systems are unsatisfactory, because lacking in comprehensiveness and detail, and yet they are by no means strongly painted clinical pictures requiring to be succinct in order to retain their vivid colouring.

The book is, on the whole, disappointing, and there is no attempt to help the reader by showing the relationship of allied diseases to each other. The illustrations, which we suggest should be greatly increased in number, are well executed. There are some verbal errors which might very easily have been omitted. Our knowledge of the writer's previous writings, and his wide experience as a teacher and physician, make us hope that a volume which has in it the making of a good book, may have the extra labour put into the next edition which it needs to secure it a place beside the many standard works written by our American brethren.

A Manual of Medical Treatment, or Clinical Therapeutics. By J. BURNEY YEO, M.D., F.R.C.P., Emeritus Professor of Medicine in King's College, London, etc. New and revised edition. Two vols. Cassell & Co. 21s. net.

THE popularity of Professor Yeo's "Manual of Medical Treatment" is shown by the fact that it has been repeatedly reprinted since its first appearance in 1893, and it is safe to predict that the present revised edition will receive a favourable reception from the medical profession. The revision has evidently been carried out with care, and several additional subjects have received consideration, such as Hay Fever, Paralysis Agitans, Cerebral Tumours, Erysipelas, Cerebro-Spinal Fever, Rickets, Scurvy, and Purpura.

The general idea of the book is to approach therapeutics from the side of the disease, and not from the side of the drug or remedy, and accordingly we find the discussion of the various methods of treatment always prefaced by a brief examination of the pathological nature and the clinical course and characters of the disease under discussion. For instance, seven pages are given to a description of the malarial fevers; four to remarks on acute lobar pneumonia; and nine to an account of cardiac pain. These sections are well done, and form a useful introduction to the remarks on treatment. Pains have evidently been taken to bring them up to date. The section on Blood, however, would bear a further revision.

The treatment of the various affections is dealt with in a very practical manner, and such new methods as have gained a place in the esteem of the profession during recent years have been included. There is an excellent summary of modern ideas on the treatment of phthisis, including a list of sanatoria, and the Nauheim treatment of heart disease is briefly but sufficiently dealt with. Here and there the information given would bear amplification. Fränkel's treatment for locomotor ataxy, for instance, is mentioned, but no sufficient description is given.

Many minor ailments find no place in these volumes, and thus space is secured for an adequate discussion of the more important subjects dealt with; but should a subject of such every-day interest to the practitioner as alcoholism in its various phases have been crowded out? But we must be grateful to Dr Yeo for what he has provided. The book is not only an eminently useful one, but one which it is a pleasure to read. The descriptions of the methods of treatment detailed are clear, concise and trustworthy, and altogether the work can be thoroughly recommended as being excellently suited to the

needs of the general practitioner, with whom, it is safe to prophesy, it will continue to be deservedly popular.

A Text-book of Medicine. By the late CHARLES HILTON FAGGE, M.D., F.R.C.P., sometime Physician to Guy's Hospital; and PHILIP HENRY PYE-SMITH, M.D., F.R.S., F.R.C.P., Consulting Physician to Guy's Hospital. Fourth edition, in two volumes. 8vo. Vol. I., 1901, pp. 1123. Vol. II., 1902, pp. 1050. London: J. & A. Churchill. Price 42s.

WE well remember the first edition of Fagge's Medicine, its superiority to any of the then existing text-books, and its immediate bound into popularity. The present edition is hardly at all the same book, so much is new, and in so much have we altered our views and our point of view since 1886. We are glad to say that Dr Pye-Smith has not altered the form of the book, nor its manner of treating of disease; for while there may be books more precise, more dogmatic, or even more scientific, there are none more scholarly or more delightful to read. The student is only too apt to think that medicine sprung full-grown upon the world, like Minerva from the head of Jove, about the time when Koch discovered the tubercle-bacillus, and the book at present under consideration is the only one of the text-books in his hands which tries seriously to teach him something of the history of medicine as well as its facts and the theories in vogue for the time being. But it must not be supposed that it is wanting in the latter. The book has been brought thoroughly up to date in all its chapters, and gives an excellent presentment of knowledge of to-day.

Diseases of the Intestines, their special Pathology, Diagnosis and Treatment. By JOHN C. HEMMETER, M.D., Ph.D. Professor in the Medical Department of the University of Maryland; Consultant to the University Hospital; and Director of the Clinical Laboratory, etc. 8vo. Vol. i., 1901, pp. 742. Vol. ii., 1902, pp. 679. Many plates. London: Rebman Ltd. Price 50s. net. 25s. per volume.

PROFESSOR HEMMETER'S work on "Diseases of the Stomach" has become a standard work on gastrology, and has prepared us to look with favour on this new contribution, encyclopædic both in size and range. It would be impossible to praise too highly the industry, knowledge and observation to which these

volumes bear witness, and for many years to come the book must remain a classic. It would be absurd to describe in detail the different subjects handled in its pages. As might be expected from Professor Hemmeter's reputation the book is especially strong in what may be called instrumental diagnosis, but we read these sections with some disappointment, due not to any fault of the author's, but rather to the difficulty of the subject. The intestine does not lend itself so readily as the stomach to investigation by scientific methods. All the ordinary intestinal conditions, and most of the unusual ones, are treated with a fulness of detail as to history, literature, clinical varieties, pathology and treatment, which leaves nothing to be desired; indeed, one has sometimes the feeling that this minuteness may defeat its own object to a certain extent, for the ordinary man may be a little apt to lose his way in the maze of facts and directions. The only omissions we have been able to discover are the absence of sprue and enterolithiasis (except as regards large enteroliths) from the list of subjects discussed, but this may be due to the fact that the index is the least complete part of the work and might with great advantage have been very largely increased in size.

The plates are excellent, and illustrate the anatomy and pathology of the intestine in a way hitherto unattempted; the whole get-up of the book, in fact, reflects great credit on author and publisher. One feature which is likely to be very useful is the carefully arranged diet tables. That these reflect American rather than British cookery is no disadvantage; we are willing to receive other things from our cousins besides yellow journalism and free libraries.

Diet and Food in relation to Strength and Power of Endurance. A. HAIG, M.D., F.R.C.P., etc. Fourth edition. Pp. 127. London: J. & A. Churchill. 1902. Price 2s.

IN this small book Dr Haig advocates the use of an "uric acid free" diet as a means of increasing "force." His theory is simple, its premises can be expressed in syllogistic form, thus:— "Force" is proportionate to the excretion of urea; the excretion of urea is proportionate to the supply of proteid; therefore, "force" is proportionate to the supply of proteid. Also, "uric acid containing food" adds uric acid to the blood; uric acid in the blood hinders capillary circulation; therefore, uric acid containing food hinders tissue metabolism. From these premises he argues that the essential food for "force" is albumen, and that albumen should be given in "uric acid free food." On the

strength of that argument he advises that a diet consisting of milk, bread, vegetables (pulses excluded), nuts, fruit, and patent proteid preparations should be used by all desiring to be possessed of "force." The diets prescribed are very different from those in ordinary use in this country; here is one:—Cheese 2½ oz., Milk 3 pints, Potatoes 15 oz., Fruit 16 oz. (note the absence of bread), (Table 4, page 68). Of this diet the author has made a personal trial; he advises it for dyspeptics, and states that it "does pretty well for children." Here is another:—Bread 11 ozs., Biscuit 12 oz., Rice 2 oz., Macaroni 4 oz., Oatmeal 2 oz., Potatoes 10 oz., Fruit 11 oz. (Table 2), a pure vegetarian diet without either milk or cheese. The author compares the effects of diets such as these with the effects of ordinary diets thus:—"Meat eating (or for that matter uric acid eating in any form) makes man lazy because it makes him sluggish . . . laziness means selfishness, idleness, luxury, effeminacy, degeneration, decay and extinction, . . . the meat eater, idle and lazy as he is, soon tires of life, . . . a hundred years to him would be a horror . . . our streets are blocked by the lethargic who do not want to walk, by the arthritic with crippled joints who cannot walk, and by the obese who can only waddle. To those who are free from collæmia, however, it is very different: all is energy, a life of labour is a glory, and power to do is a pleasure; there is a strong desire to live even to a hundred, and no desire to be idle, lazy and selfish, for a moment. . . . On the other hand, perfect, complete and continuous solvency of mind and body lifts both to ever higher and brighter levels of power, beauty, and knowledge of the truth; forming at once the highest attainable development of the *mens sana in corpore sano*, and leading ever upwards 'into the higher sunlit slopes of that mountain which has no summit, or whose summit is in heaven only' (Sartor Resartus)" (pages 119-121).

A lay reader might, after perusing this book, expect to find the elixir of life in a restricted vegetarian diet, but a reader possessed of even a rudimentary knowledge of physiology could hardly be so deceived. Look at the premises on which the arguments are founded. The first, that muscular energy ("force") is proportionate to urea excretion is a mis-statement; it has over and over again been clearly proven not to be so; Voit, Pettenkoffer, Zuntz, Atwater, Paton and others have done so; the food principles which are metabolised in the production of muscular energy are non-nitrogenous, and it has been conclusively shown that the excretion which is increased in proportion to work done is that of carbonic acid and not that of urea. Dr Haig's statement that "force is thus in all directions proportional to urea" cannot be accepted. Dr Haig himself

apparently does not accept it *simpliciter*, for it is to be noted that in his full diet (Table 2, *vide supra*) he prescribes a diet which is poor in proteid, but has an ample allowance of non-nitrogenous food; for a scrutiny of the diet shows that it differs from standard diets, such as those of Voit and of Atwater, by having a larger allowance of carbohydrate and a smaller allowance of proteid. The food principles of such a diet as Dr Haig's Table 2 are by calculation found to be, Proteid 97 grms., Fat 38 grms., Carbohydrate 601 grms., Calories 3260. The second premise, that uric acid in the blood hinders the metabolism in the tissues, is non-proven. It would be out of place here to discuss it at length, but suffice it to say, that although it has been before physiologists for years it is not as yet, and probably never will be, accepted by them. Neither premise being accepted, the arguments in favour of the proposed dietary revolution cannot be accepted. Dr Haig does not give sufficient detail to enable the reader to judge by results; but if the present book is to be taken as a fair sample of that "perfect, complete and continuous solvency of mind and body (which) lifts both to ever higher and higher levels of power, beauty, and knowledge of truth," it is probable that the reader will prefer to remain an ignorant, idle, luxurious and lazy meat eater, rather than be an uric acid free immortal living in the "higher sunlit slopes."

A Manual of Practical Anatomy. By the late Professor ALFRED W. HUGHES, M.B., M.C. Edin., F.R.C.S.Edin., F.R.C.S.Eng.; Professor of Anatomy, King's College, London; Examiner in Anatomy, Royal College of Surgeons, England, etc. Edited and completed by ARTHUR KEITH, M.D. Aberd., F.R.C.S.Eng.; Lecturer on Anatomy, London Hospital Medical College. In three parts. London: J. & A. Churchill. 1901-2.

THE lamented and untimely death of Professor Hughes, who was so well known as a teacher and so much respected as a man, prevented him from completing this work himself, but it is only fair to say that it has been materially strengthened by the able editorship of Dr Keith. Besides a number of the usual black and white drawings taken from various acknowledged sources, Dr Keith has greatly enhanced the value of the work by the introduction of many original and diagrammatic drawings which are of great explanatory value, although in some instances the use of colours would have given greater clearness to the diagrams.

The directions for dissections, although brief, are admirably clear; and the order of dissection recommended is sound, although not that followed in many schools of anatomical teaching.

The anatomical descriptions are accurate and written in a style which is distinct and concise, and there is no attempt at padding. This may perhaps render the volumes less interesting to read, but it is of value in enabling the student to easily and quickly pick out and acquire the main facts of anatomy.

The publishers are to be congratulated in having produced an attractive and handy work which deserves to take its place among the standard works of its kind.

A Pocket Guide to Anæsthetics for the Student and General Practitioner. By THOMAS D. LUKE, M.B., F.R.C.S.Ed., Anæsthetist to the Deaconess Hospital, to the Dental Hospital, and Instructor in Anæsthetics to the University Surgical Classes, Royal Infirmary, Edinburgh. Pp. 148. Edinburgh: William Green & Sons. 1902.

A CAREFUL perusal of this work will undoubtedly benefit the student of medicine by giving him an idea of the responsibilities and anxieties connected with his duties as an anæsthetist, and, if it had no other value, it would for this alone be well worthy of a place in every student's library. But in addition to this it should prove of use to the general practitioner as, in addition to the many valuable hints in regard to the detailed administration of the various anæsthetics, there is a chapter devoted to the indications for and contra-indications to the use of chloroform and ether in the many and diverse operations that the surgeon is called upon to perform. Dr Luke throughout inclines towards the more frequent use of ether in the majority of operations, and in this departs from the teaching and customs of his old school. We quite agree with him. The more we see ether employed as an anæsthetic, the more do we come to appreciate its advantages; more especially in that, apart from its undoubted greater safety than chloroform, it possesses the very great advantage that the "after sickness," although possibly severe, never lasts more than a few hours, and does not produce the same depressant action that one finds with chloroform. The chapter dealing with the methods of producing local anæsthesia is of very great value and contains many useful hints. It is to be regretted that Dr Luke did not give more attention to the composition of the book, as there are too many grammatical errors, and occasionally the sentences are somewhat involved. But for these easily remedied defects the book is good, and Dr Luke is to be congratulated on his work.

Practical Medical Electricity—the Röntgen Rays and Finsen Light. By DAWSON TURNER, B.A., M.D., F.R.C.P. (Ed.), etc., Medical Officer in Charge of the Electrical Department, Royal Infirmary, Edinburgh. Third Edition, revised and enlarged. Pp. 396. Illustrations, 168. London: Baillière, Tindall & Cox. Price 7s. 6d. net.

THIS edition is enlarged by the addition of fifty pages, chiefly containing details as to the advances in treatment by Ultra-Violet Light and X-Rays, while the first part of the book is brought up to date.

It forms a handy volume, well printed and illustrated, and the fact that a further edition has been called for shows that the book has met the requirements of a certain section of the medical public.

To us the title seems a misnomer, as a large part of the work is devoted to electro-physiology, and too little to the details and difficulties which crop up in the employment of electrical apparatus for the treatment of patients.

In a volume of this size fully a third of the contents need not have been devoted to the elements of electricity; and if the author had presupposed, as he might surely have done, that his readers had acquaintance with the properties of Leyden Jars, Magnets, and Galvanic Cells, much valuable space could have been devoted to the records of his own practical experience.

As it is, the results of Static, X-Rays, and Ultra-Violet Light treatments are mainly summarised. We cannot agree with the author's views as to the avoidance of reaction in the treatment of Lupus Vulgaris, and note also with surprise that no mention is made of the necessity for protecting surrounding tissues by lead-foil or other means.

Much stress is laid on the value of the Condenser-Spark Lamp for the production of Ultra-Violet Light, but recent reports from other sources do not bear out these views.

Dr Turner expresses himself very clearly, and his book thus forms agreeable reading, being particularly valuable on the theoretical parts.

The Röntgen Rays in Medicine and Surgery. By FRANCIS H. WILLIAMS, M.D. With 410 Illustrations. Second Edition. London: The Macmillan Co. 1902.

WHEN one reads in the preface that the first edition of this book was exhausted in three months, one's memory turns to those astute publishers of would-be popular novels, who issue a first edition of twenty copies and a second of thirty, and are

able to announce that a third edition was required ten days after the first issue. But a perusal of this work shows that no such adventitious aids to success are requisite, and that the rapid exhaustion of the edition was due to the general recognition that this is the best book published on the subject.

It is essentially practical in its scope, clear in its directions, and rich in illustrations. Almost the only criticism one can make is that some of the illustrations are superfluous, and that as a whole those of apparatus are too exclusively local. When Dr Williams realises how widely his book has circulated, he may think it well in the next edition to furnish illustrations of what we can assure him is perfectly reliable apparatus, "made out of America."

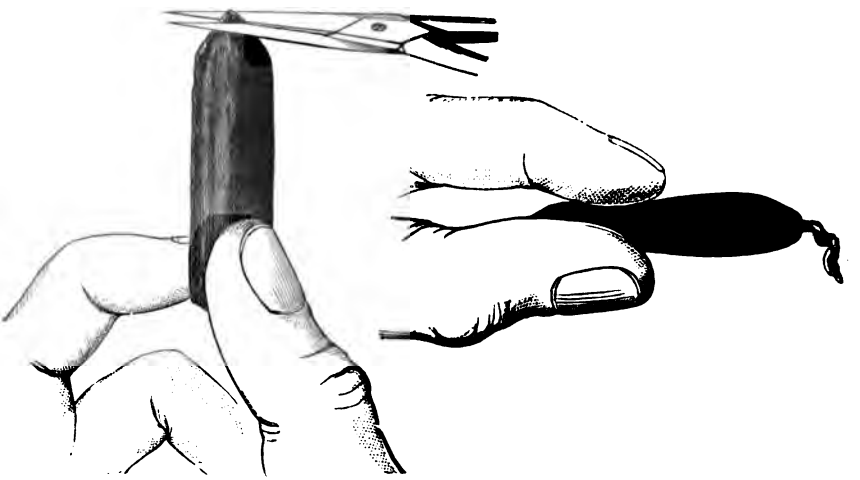
To those who are just beginning to work with X-rays, we can commend no book better; those who have already begun to work will find much to help them; and those who pose as experts will find some useful hints, well worth their while to take note of.

Ross and Cromarty. Eleventh Annual Report of the Public Health of the County for 1901. By WILLIAM BRUCE, M.D., LL.D., Medical Officer of Health.

FROM Dr Bruce's Report it is evident that steady progress has been made during the year in improving the sanitation of the county. Much still remains to be done in the way of provision of hospital accommodation for infectious cases. In regard to the problem of sewage collection and disposal, Dr Bruce very wisely recommends earth-closets for village populations, and points out the urgent need for efficient scavenging. Included in the Report are several district reports by local medical officers of the respective districts. Meteorological observations and statistical information complete the review of the year's experience and work. Throughout the Report there are occasional errors which a more careful revision of the proofs would have obviated. The total number of infectious cases notified is given as 261, whereas 216 is the correct figure. In a table referring to the whole county, death-rates, which are statistically incorrect, are given for various age-groups of the population. Such rates should not be calculated on the whole population, but on the populations of the age-groups to which they respectively refer. The proportion of uncertified deaths is exceptionally large, and the census of 1901 revealed a high rate of decrease of the population. The rate of decrease is much greater than in the previous decade, and is attributed by Dr Bruce to emigration from the country districts to town life.

Notes on Foods, Drugs, etc.

From **Messrs Oppenheimer, Son & Co.** we have received samples of a rather neat invention, which they have introduced under the name of **Cerettes**. Each one contains a sufficient quantity of the medicament for application. They are made of some flexible material, and are absolutely clean and non-greasy. When the contents are required for use, all one has to do is to snip off the end, and press out the contents. They will be found by travellers, or by those who are from home all day, a much cleaner means of carrying about any desired application than the ordinary collapsible tube, which has a way of leaking into the pocket.



We must, however, add that we question the wisdom of the firm in issuing with these a pamphlet indicating the diseases in which the various ointments are used. We have always understood that Messrs Oppenheimer prided themselves on appealing only to the profession, and this list certainly suggests the possibility of the use of these Cerettes by others, without medical advice. We would strongly recommend them to withdraw such instructions as the following :—"Valuable as a counter-irritant and resolvent in enlarged glands, goitre, and ague-cake, the application being made in the direct rays of the sun or before a fire. Used in indolent ulcers, seborrhœa, lupus erythematosus, chapped lips, sores and cracks at mouth corners and fissured lips." Such directions are hardly required by medical men, and no one could be blamed for suggesting that they seemed to be addressed to the public.

All Communications—including **BOOKS** *for* **REVIEW** *and* **EXCHANGE JOURNALS**—*are to be addressed to* THE EDITORS, 7 *Manor Place, Edinburgh.*

THE SCOTTISH MEDICAL AND SURGICAL JOURNAL

PRESIDENTIAL ADDRESS[1]

By JAMES RITCHIE, M.D., M.R.C.S. Eng., F.R.C.P.Ed., F.R.C.S.Ed.

FELLOWS of the Edinburgh Obstetrical Society, in opening this, the 64th session of our Society, I desire to express my great appreciation of the high honour which you have conferred upon me in electing me to the position which I now occupy, also to testify to you the great pleasure which it has afforded me to preside at our meetings during the past session, a pleasure which has been marred by two considerations only —the one relating to a memory, the other to a prospect— viz., the remembrance of the ability and eminence of those who have in the past so worthily occupied this chair has somewhat weighed me down with the responsibilities of the position ; and also the prospect of this evening has cast a long shadow, if not a very dark one, extending from last November until now. Your kind consideration has invariably rendered the duties pleasant, and I venture to expect a continuation of the same forbearance.

Gynecology has during the past thirty-five years made great progress. Pathology, one of the piers on which our practice is founded, is more of a science than formerly ; it is still, however, far from being perfect, and there is abundant room for our Fellows, who may have time and opportunity, to work in the interests of humanity and of science. The work of Lord Lister, first in connection with antiseptic, and later with aseptic surgery, has led to great advances in operative gynecology, and we are proud to realise that in this department—

[1] Read before the Edinburgh Obstetrical Society, 12th November 1902.

that of operative gynecology—Fellows of our own Society have, in no small measure, been leaders in the van of progress. We greatly admire the care, skill, resourcefulness and readiness of our operating gynecologists, and those of our Society who do not operate are glad to avail themselves of the experience and skill of those who by frequent practice are qualified to render efficient help when it may be necessary. But it would be a mistake were we to consider that gynecology is a science which finds its indications most frequently fulfilled by operative interference. As in the legal profession many of its most able and trusted members endeavour to keep their clients from that which is associated with risk and uncertainty—a law plea—so I suppose that most medical men are desirous if possible to preserve their patients from the risks, uncertainties, and sometimes, alas, mutilations of operation. In medicine we have often to choose between two evils, and it does happen at times that operation is the lesser evil. There are diseases in which delay would be dangerous, and so soon as the diagnosis is made operation becomes a necessity; there are also conditions in which, although there may not be urgency, the only hope of cure lies in operation. When operation becomes a necessity the anxieties are lightened by the knowledge that it is to so great a degree free from pain, thanks to a former Fellow of this Society, and that the uncertainties of such interference are now so much less than they formerly were. But a large proportion of the diseases peculiar to women do not call for operation, and it is to this department of gynecology and to the responsibilities of gynecologists who do not operate, that I desire for a very short time to direct your attention.

The mere enumeration of some of the diseases included will show how wide the field is, viz.:—Various affections of the external organs of generation — pruritus, excoriations, ulcerations, herpes—urethritis, vaginismus—which in its milder forms is amenable to treatment without operation—vaginitis, acute and chronic—we have to bear in recollection, however, that some of the chronic cases are due to conditions of the endometrium which require operation. Amenorrhœa, dysmenorrhœa, menorrhagia—these are described as diseases, and certainly the second of them is at times a serious *dis*-ease, but

"trouble springs not from the ground, nor pain from chance," they are in reality symptoms, the discovery of the cause of which is often difficult and at times impossible. Then there is a large group of ailments in connection with the menopause which call for both skill and patience. Displacements of the uterus, various inflammations of that organ, various diseases of the Fallopian tubes and of the ovaries (including that condition which used to be called ovarian irritation) pelvic hæmatocele. There is also a considerable number of diseases during pregnancy, such as sickness, pyrosis, neuralgias, pressure symptoms, rheumatism of the uterus, etc., which belong as much to gynecology as to midwifery.

The important relations of some of these diseases indicate to us how necessary it is that we should endeavour to make ourselves experts in the diagnosis of them all and in the treatment of most of them. The remembrance of errors, as well as of difficulties, enables me to speak with sympathy.

Although some of the more wealthy classes, at an early period of any ailment, seek, or are advised by their medical attendant to obtain the assistance of a specialist, the majority of patients are primarily dependent on, or prefer, their ordinary medical attendant, and the conduct of the case remains in his hands throughout its whole course.

In some diseases early diagnosis is of prime importance. For example, it is important to differentiate between an ovarian tumour and a subperitoneal fibroid. The comparatively early removal of an ovarian tumour before adhesions have formed diminishes the danger of operation; whereas uterine fibroids, if producing no troublesome symptoms and if not growing rapidly, especially when they occur about the climacteric, are, in my estimation, better left alone. It is of importance that an ovarian tumour which is first brought to notice because of symptoms arising in connection with twisting of the pedicle, should be diagnosed at once, because probably it is better that immediate operation be done. Perhaps in no disease is early diagnosis of more importance than in uterine cancer, and in few diseases is an early diagnosis more difficult, even to those who are most skilled. The symptoms of early cancer are not well marked, and even if the microscope be used as an aid in diagnosis the appearances are

not always characteristic; for example, it is difficult to differentiate malignant adenoma from inflammatory changes. In carcinoma of the uterus it is a question whether operation should be undertaken, unless the disease be seen and recognised at a very early stage, viz., at a time when the diagnosis is most difficult. In later stages it is possible that after a time, with increasing experience and with extensive removal of glands, as is now done in operations for cancer of the lower bowel, there may be more favourable results than hitherto. The question of operation for cancer of the uterus is not within the limits of my subject; but the relation of the medical practitioner to the early diagnosis of the disease comes within its scope, and the reasons for such early diagnosis raised the question of operation. But having said so much, I would not have it supposed that, while in my mind the whole question of operation for uterine cancer is still *sub judice*, there do not exist even advanced cases in which a palliative operation may be done with advantage. Each case must be considered on its own merits, the treatment to be determined by the kind of cancer and by its position. I remember an elderly woman who, when first seen, had a large cauliflower excrescence which nearly filled the vagina. She was exsanguine from loss of blood and other discharge, and was apparently suffering from septic absorption. As a palliative the growth was removed by means of the galvano-cautery. After a few weeks there was a marvellous improvement in her health and appearance, and, contrary to expectation, for many years there were no symptoms. Ten years later she was suffering from inoperable cancer. As illustrations of the difficulty of the diagnosis of cancer uteri the following cases may be mentioned. There was recently recorded in the *Journal d'Accouchements* a case in which a portion of the cervix was excised, microscopical examination led to the diagnosis of malignant adenoma, and the recommendation that the uterus be immediately removed. The operation was refused, the cervix became covered with exuberant granulations, which condition was taken as an indication of the unwisdom of the refusal; nevertheless complete recovery took place, and was followed later by pregnancy, the birth of a healthy child, and a normal puerperium. It is possible that the cervix may have been the seat of commencing malignant

disease which was entirely removed at the time of operation, or there may have been an error in diagnosis. The other case is that of a woman who had been married many years; she was not aware of having ever been pregnant, but she had for a considerable time suffered from menorrhagia. The uterus was curetted, and microscopical examination led to the diagnosis of malignant disease. No further operation was done, the patient recovered and remains well, now some years after the curetting. In this case there are three possibilities: the portion examined may have been the result of conception with early abortion; or there may have been the commencement of malignant disease, which was entirely removed by the operation; or there may have been a misinterpretation of the microscopical appearances.

While it is important that we should be able early and correctly to diagnose certain diseases, it is also desirable that we should be able to determine in what cases interference is unnecessary. It is well known how much comfort is afforded to a patient with marked retroflexion of the uterus by the reponing of the organ and inserting a suitable pessary—the sacral discomfort is relieved, the monthly loss is diminished, and in some cases sterility is cured. There occurs to my memory such a case, a nullipara who had been married many years, and by and by the family increased so rapidly that it seemed to those interested as if there might be too much of what had been longed for. But there are displacements which do not call for special treatment. I recall one case in which the displacement was not responsible for the symptoms complained of, and it did not require any treatment, nevertheless it was a source of great mental anxiety to the lady, because in a city in the south it had been described to her as serious and as requiring special treatment by mechanical means. In other cases it is the cause rather than the displacement which calls for treatment.

Then while we should have constantly in memory the possibility of reflex phenomena due to uterine troubles, we must be on our guard lest, having strong leanings towards gynecology, we attribute to an error in the pelvic organs some symptoms which may have an entirely different cause —for example, pain in the left hypochondrium due to adhesions of an old gastric ulcer has been attributed to some

supposed affection of the left ovary and treated accordingly without benefit, because due investigation into the history of the case had not been made.

Conversely, now that the appendix vermiformis occupies so very large a portion of the field of medical vision, it is well to bear in memory when we are dealing with a female patient that other organs in its neighbourhood may be the source of inflammatory trouble there. Some time ago a lady who had suffered from some inflammation in the right iliac region was sent to me from the country with the recommendation that the appendix should be removed. The history of dysmenorrhœa, menorrhagia, and bladder troubles of considerable duration, and the existence of inflammatory deposit in the right broad ligament, with an absence of thickening on external palpation, rendered it probable that the trouble had originated at the right side of the uterus. Ichthyol externally with the hot vaginal douche twice a day was followed by the entire removal of all the symptoms and signs and restoration to health of the patient.

It is important, although it is somewhat difficult, that we be constantly on our guard, in the practice of gynecology as well as in other departments of medicine, against purely symptomatic treatment. I have vivid reminiscence of the scorn which one of my former teachers used to heap on those who, when a symptom was mentioned, were ready with the reply, "I know a cure for that." I have already mentioned three symptoms—amenorrhœa, dysmenorrhœa, and menorrhagia, and it is desirable that in relation to a case which may exhibit any of these symptoms, we should endeavour if possible to ascertain the cause which may be present. Not infrequently the two latter symptoms co-exist. When we see a case of amenorrhœa with anæmia we naturally think of Blaud's capsules, or of iron in some form, but before venturing to give any advice it is necessary that we go carefully over the systems with the view of discovering the cause. We may fail to find an apparently sufficient one. There are several problems connected with the origin of these symptoms which require to be solved, and these problems offer important subjects for research by the Fellows of our Society. The relations of amenorrhœa and anæmia require elucidation; they may have a common origin, or they may be causally

related to each other. Why are so many young domestic servants bloodless? Why do some anæmic girls continue to menstruate regularly, although scantily, whereas others have it early arrested? Is it the feeding that is wrong? Maids from the country are, as a rule, more richly fed in town than they were at home; many of them have the liver deranged, as evidenced by the presence of a small quantity of albumen in the urine and an excess of bile acids. In such cases treatment of the liver is usually followed somewhat quickly by recovery from the anæmia. This class is, however, only a fraction of the large number of cases of anæmia which we see, and is not necessarily associated with amenorrhœa. Is the want of pure air the cause? Often the sleeping apartment is small and dark, or in an area, and although many have good-sized bedrooms, they are not much out of doors; besides, the air of a large town is not so pure as that of the country. How far is the teapot to be blamed?

Notwithstanding all that has been said and written about dysmenorrhœa, it still presents difficulties in the elucidation of its cause. Some cases are cured only after operation; some persist notwithstanding operation; in many, the nervous system is chiefly to blame, in others, entirely so, and these latter are cured without operation by tonic treatment, fresh air and exercise. The generative organs are subject to such extensive circulatory changes from physiological causes that they are liable to have the dilatation of blood-vessels passing on to a pathological condition. In women of nervous constitution, not only is the vasomotor system specially mobile, a condition which favours the production of excessive dilatation of vessels, but the nervous system is peculiarly sensitive to the effects of pressure on nerve-endings, including those endings of which we only become conscious when a pathological condition has been induced; for example, those in the heart, the intestines, the ovaries, etc.

In relation to copious menstrual flow a most important question has in each case first to be solved, viz.: What has been the custom of the individual as to amount of loss at each period, and what is her comparative state of health at its close? Some women have always had a considerable loss and they do not seem in any way to suffer; if so, no treatment is required

Other women, however, even after a comparatively small loss, are exhausted, they look bloodless, and it takes them days to recover; for these, treatment must be adopted. As menorrhagia occurs in connection with so many conditions, some grave, others not, it is an important symptom. Menorrhagia in young women is occasionally caused by chronic constipation, in some it arises from congestion of liver apart from alcohol, in some women it is due to alcoholic excess. Polypus, sub-mucous fibroids, flexions of uterus, sub-involution, endometritis, various affections of the cervix, ovaritis, may also cause it. As a woman approaches the climacteric, not infrequently the uterus is found to be large, and there is a copious flow at the periods or at some of them; in others there is no enlargement, but the more copious or irregular flow is probably the result of peculiarities in the capillary circulation in the uterus; at times an excessive dilatation corresponding to the flushings so commonly experienced in other parts of the body at that time of life. Menorrhagia may also be caused by a somewhat early stage of uterine cancer. Such a symptom in a multipara about middle life with slight-coloured discharge between periods would be very suspicious. In all cases its occurrence demands careful investigation.

Probably I have said more than enough to impress on our minds the wideness of the field and the necessity for care and skill in diagnosis.

As to treatment, we are in a better position than those who preceded us, because, as I have already remarked, pathology has advanced and our means of diagnosis are better. We have also some new methods of treatment. The older ones, such as blood-letting—at least local blood-letting—and counter irritation might perhaps with advantage be more frequently employed than they are. Salines and other aperients have still an important place. Even in the department of non-operative gynecology the recognition of micro-organisms as potent factors in the production of disease has led to improved methods. The value of rest in acute, sub-acute, and even in some chronic cases is more understood, conversely the value of exercise in other cases is more appreciated. Much more value is now attached to hygienic measures than formerly. Heat and cold are old therapeutic agencies, but their mode of action is better

understood. The hot douche has now a much wider sphere of use. For scientific investigations on its physiological action we are indebted to Dr Milne Murray, my predecessor in this chair, and in consequence of a due appreciation of its mode of working we can use it with an amount of intelligence and confidence which was previously impossible. Formerly cold douches and enemata were recommended for the treatment of uterine hæmorrhage, and we would have feared to use hot douches for its arrest; now they are known to be invaluable in various conditions with hæmorrhage, sub-involution of uterus, menorrhagia at the climacteric, that at the commencement of influenza, etc. Possibly although these may hold their place in the treatment of hæmorrhage due to inflammations and sub-involution this method may in other cases be displaced or at least aided by the internal use of adrenalin. I have found it very effectual, in the dose of 20♏ three or four times a day, in limiting the flow in cases in which operation was unnecessary or inadvisable, for example in menorrhagia at the climacteric and in nervous patients with an excessively mobile nervous system. The glycerine plug, a not unimportant aid in reducing congestions, was not in use thirty years ago. Ichthyol is also one of the newer remedies, and a valuable one, for the treatment of chronic inflammations of the pelvic organs with inflammatory deposit. I have seen cases in which, although the ovaries had been condemned to ablation, the use of ichthyol externally along with hot douching twice daily resulted in the cure of very troublesome dysmenorrhœa and menorrhagia and the ovaries were preserved. Regarding the value of electricity there is still difference of opinion, but those most skilled in its use report very favourable results.

When I was about to enter on practice a friend warned me that probably I would make one of two mistakes: that I would either be stranded on purely scientific work, or that I would get into the whirlpool of practice to the exclusion of science. I trust that he did not mean that like Atalanta I would be so covetous of the golden apples that the race to a more important goal would be neglected; he indicated, however, that it was difficult to combine practice and scientific work. I acknowledge the difficulty, and remark that if we look around us we find that the type of mind of the scientific worker is, as

a rule, very different from that of the man in practice. At the same time there are many examples of outstanding men in practice who have also been renowned as scientific workers, and our Society includes the names of men who are eminent in both departments. It seems to me a mistake, even a slander, to refer with thinly-veiled sarcasm to practical men as if they were empiricists, and to suppose that a man in practice cannot be scientific. He may not have time for original scientific research, but he may do all his work in a thoroughly scientific spirit. Those who are in practice have the best opportunities for obtaining trustworthy scientific results. Experiments *in vitro* are rarely conducted under conditions similar to those which exist in nature; these come under the observation of the scientific medical or surgical practitioner. Both experimental and practical scientists have difficulties to face and fallacies to guard against, but I protest strongly against the idea that a practical man cannot also be scientific. Unfortunately, our practice must at times be empirical, because we cannot obtain solid scientific ground on which to build a theory. At times our practice is satisfactory, although the reason of the satisfactory result has not yet been found. It is desirable that we should have a scientific reason, a working hypothesis it may only be, for all we do. It is interesting and amusing to read some of the theories of those who preceded us. Through their failures our experience has been advanced, and, doubtless, our successors will look back with wonder on some portions of our theories and of our practice. Possibly nay probably, some of our theories will become obsolete, as those of our predecessors have done; nevertheless, although like the mastodons, megatheria, and ichthyosauri of a byegone age, they may appear as crude monstrosities to a succeeding generation, let us remember that these played an important part in the economy of the time during which they existed As to our theories,

> "What is it to the changeless truth that yours shall fail in turn?
> What if the o'erturned altar lays bare the ancient lie?
> What if the dreams and legends of the world's childhood die?"

Our Society is fortunate in having on its roll the names of so many who have made valuable contributions to the advance

of gynecology, and in having still in its membership those who have led and who are leading both in scientific and in practical work. It may not be in our power to obtain equal distinction with them, but we may at least aim to do our work in a scientific spirit, in so far as the science of our day has advanced. We shall have the consolation that we are doing the best known for the cure or the alleviation of our patients.

> "The holiest task by Heaven decreed,
> An errand all divine,
> The burden of our common need
> To render less is thine."

We shall further have the pleasure of

> "A toil that gains with what it yields,
> And scatters to its own increase,
> And hear, while sowing outward fields,
> The harvest song of inward peace."

It would contribute much to the weal of our Society, to the advancement of its aims, and to the progress of our science were our practical members to submit to us, in short papers their interesting, peculiar, or difficult cases, or any authentic scientific observation, even if it be an isolated one. Many important observations and interesting cases are useless because unrecorded. Although many communications are greatly enhanced in value by an historical summary, such is not a necessity for the production of a useful paper. We may usefully discuss the subject, although the writer may not

> "Gather up the scattered rays
> Of wisdom in the early days,"

and inform us what Hippocrates or other old-world, or it might be new-world, man of renown has written regarding it. If we have many such short practical papers during the course of the session on which we have entered, its interest and usefulness will be augmented.

ECLAMPSIA WITH RAPID DELIVERY BY MEANS OF BOSSI'S DILATOR[1]

By Professor A. R. SIMPSON, M.D., D.Sc.

WHEN I showed a Bossi dilator to the Society last session I stated that I had only had occasion to test it in some gynecological cases, in which it was used without the sheaths on the points for dilating the cervix in the same way as one uses the Ellinger instrument and its modifications. In this way it has from time to time been employed very satisfactorily.

Within two days of the time when I took over the service in the Maternity, two cases of eclampsia were admitted. In one, a seven months primipara, labour was already in progress and no interference with the process was indicated. The child was born alive, but survived only three days. The mother made a rapid recovery.

The second case was a much more serious and difficult one, and I give it here as it has been recorded by the house-surgeon, Dr R. C. Low, James Scott Scholar.

M. G., from D. Poorhouse, unmarried, i-para, age 18. Admitted to Royal Maternity on November 3rd, 1902.

History.—For some days before admission patient had not been feeling very well. She complained of headache, which was not very severe, but she was still going about as usual. Within the last fortnight she also noticed that her feet and ankles were swollen, and that there was a fulness below the eyes. On the forenoon of Monday, November 3rd, patient suddenly had a fit. This was succeeded by a series of fits at intervals. A doctor was sent for, and he recognising the condition, used means to try and subdue the fits before sending her into hospital. But as the fits, which had stopped for a time, became worse in the afternoon, the Poorhouse authorities had her immediately conveyed to the Maternity Hospital, where she arrived about 6 P.M. She had three or four fits on the way up in the cab.

State on Admission.—On admission patient was quite unconscious. She was breathing loudly; the mouth was full of brownish frothy fluid, and the face was swollen and puffy.

[1] Communicated to the Edinburgh Obstetrical Society, Nov. 12, 1902.

She was continually tossing about, sometimes struggling violently. There was slight œdema of feet and legs.

On *Inspection* the abdomen showed the usual signs of advanced pregnancy. On *Palpation* the fundus uteri was felt about three fingers' breadth below ensiform cartilage and slightly to the right of the middle line. The breech of child was felt to be uppermost and the back towards the left side. The fœtal heart was heard beating feebly midway between umbilicus and left anterior superior spine.

Per vaginam.—Orifice admits two fingers; vaginal walls moist and rugose; cervix prominent and soft; os barely admits one finger. Head of child felt through anterior fornix.

There were no uterine contractions occurring.

About ʒiii of urine were drawn off by the catheter and showed a very marked reaction on boiling and also on addition of pure HNO_3 in the cold. Esbach's albuminimeter showed that it contained 28 grms. of albumin per litre.

During the examination of the patient $CHCl_3$ was administered.

At 6.30 a fit occurred, which lasted about two minutes. There was first tonic contraction followed by clonic contraction of all the muscles causing twitching of the face, conjugate deviation of eyes to one side and jerking of the arms and legs. The patient got gradually more cyanosed, and a peg was placed between the teeth to prevent biting of the tongue. The jerkings gradually became slower, and the fit passed off. For some time after the fit, the breathing was very stertorous. ¼ gr. of morphia was given hypodermically.

At 7 P.M. 2♏ of croton oil in some sugar were placed on the back of the tongue, and another ¼ gr. of morphia was given hypodermically.

At 7.30 a pint of normal saline solution was transfused under both breasts.

The patient's pulse was rapid; the temperature 100° F. The fœtal heart sounds were not easily audible.

At 8.40 patient was chloroformed, and Professor Simpson dilated the cervix gradually with Bossi's dilator, which was first introduced without the detachable sheaths at the ends. Occasional hot douches of lysol were given to help dilatation. In twenty minutes the os was fully dilated. There was

practically no bleeding, and the membranes having burst when dilatation was nearly completed, at 9 P.M. axis-traction forceps were applied and traction made at intervals. At 9.35 the head was born ; and in a minute or so the whole child, which was a female weighing about 6½lbs., was expelled.

The child was pale and limp. It made no attempts at respiration. Its mouth was cleared out. It was put in hot and cold baths alternately. Hypodermic of strychnia given. Rhythmic pulling on tongue was tried and also artificial respiration by Schultze's method. These measures were persevered in for about half an hour, but were useless.

Immediately after birth of the child the $CHCl_3$ was withdrawn. The hand was kept on the fundus and placenta expelled by uterine effort at 9.43. Immediately after that patient had a very bad fit lasting about four minutes. She was very much cyanosed, and artificial respiration was had recourse to. The vagina was then packed with iodoform gauze after douching with lysol. Catheter passed but bladder empty.

11.10 P.M.—Another fit.

12.55 P.M.—Another fit. Conjugate deviation of eyes to left ; pupils were pin point at this time.

Nov. 4th, 1.50 A.M.—Enema of chloral 20 grs. and potassium bromide 40 grs. in water was administered.

2.40 A.M.—Another fit.

2.55 A.M.—Saline transfusion under both breasts, one pint.

4.10 A.M.—Patient removed from labour room into ward. She was still somewhat restless but breathing more easily. Pulse 128, temp. 102° F.

5 A.M.—Another fit lasting two minutes.

5.30 A.M.—As croton oil had produced no motion, a soap and water enema was given, but with no result. Medicinal enema of chloral 20 grs. and pot. brom. 20 grs. was administered.

7.20 A.M.—Another fit lasting three minutes.

12 NOON.—Packing removed from vagina. Boracic douche given ; no hæmorrhage. Temp. 101·4°, pulse 120. The patient could now swallow, and took about 3 oz. of milk.

No fits till 6 o'clock. Another fit at 9 o'clock.

Catheter passed and 16 oz. of urine drawn off.

At midnight 20 grs. of chloral were given by mouth.

Nov 5th.—Patient was now swallowing milk, which was given about 3 oz. every two hours.

6 A.M.—℥i Henry's solution.

9.10 A.M.—Another fit.

10 A.M.—℥ii Henry's solution.

12 NOON.—Thirty grs. bromide of potassium were administered. Patient was also put on pot. acet. gr. x and tinct. digit. 5 ♏ 6-hourly. During the day patient had six fits at intervals of about four hours.

At 4 P.M. four grs. of thyroid extract were given.

At 6 P.M. there was a fit lasting three minutes.

At 10 P.M. ℥ii Henry's solution given. Turpentine and castor oil enema given, and turpentine stupe applied to abdomen as there was a good deal of gaseous distension of the bowels.

At midnight patient recovered consciousness and spoke for the first time. During all that day patient was able to swallow milk at intervals.

Nov. 6th.—As bowels had not moved yet at 1 A.M., 60 grs. pulv. jalapæ co. were given, and a soap and water enema with ℥i turp. and ℥ii castor oil administered, but with no result.

At 8 A.M. ℥ii castor oil were given by mouth, and at 11 A.M. the bowels moved for the first time since admission. Ten minutes later patient had a fit and another one about fifteen minutes after that. Since then the patient has had no more fits. She is kept entirely on milk. She got 30 grs. potassium bromide at night as she was very restless.

Nov. 7th.—Patient passed urine for the first time, it having always been drawn off previously.

Nov. 8th.—Up to present time patient has gradually improved. She is being douched four times daily with boracic douche. The uterus is now only about two inches above the pubis. There has been no recurrence of the fits since the third day after the confinement, but the patient is still very slow in answering questions, and does not seem to realise exactly where she is.

Nov. 12th.—Patient had eighteen fits altogether after admission. Though she still complains of headache, she is now making a good recovery. This morning her temperature

is 97° and her pulse 84; whilst the urine is entirely free from albumen, as appears from the following record:—

URINE.

On admission, *Nov.* 3	albumen 24 grms. per litre urea 5 grs. per ℥i	Casts found.
Nov. 4 morning	alb. = 8 grms. per litre	16 oz.
„ evening	alb. = 3 grs. per ℥i	
Nov. 5 morning	alb. = ⅝ grm. per litre urea = 5 grs. per ℥i	Casts found.
„ evening	alb. = ½ grm. per litre urea = 3 grs. per ℥i	
Nov. 6	alb. = ⅛ grm. per litre	
Nov. 7	alb. = ⅛ „ „ „	
Nov. 8	alb. = ¼ „ „ „	
Nov. 9	alb. = ⅛ „ „ „	
Nov. 10	alb. = trace	
Nov. 11	no albumen urea = 3 grs. per ℥i	

The case interests me not only as the first in which I have had the opportunity of using the Bossi Dilator, but as showing that it is applicable in a case where the indication for delivery was urgent, and the uterus was as yet inactive, the os and cervix being still so narrow that the instrument with the shields on the points could not be passed. The claim that Bossi has made for the instrument that it acts not merely as a mechanical dilator, but as a stimulant to uterine action, was amply confirmed in this experience as it has been by Leopold, Knapp and others, who have made trial of it. The uterine activity that was awakened during dilatation was kept up afterwards during the forceps extraction, and sufficed for the expulsion of the body and for the completion of the third stage.

P.S.—I was led to make this hurried communication as my former house-surgeon, Dr Frost, James Scott Scholar of 1900, had given notice on the Society's billet of an interesting account of a case of eclampsia in which he had made successful use of Bossi's dilator in September. Since the meeting, Dr J. W. Ballantyne, assistant physician to the Maternity, has been able to satisfy himself of the value of the instrument by its employment in yet another eclamptic case.

LIFE INSURANCE EXAMINATION AND THE RELATIONS OF THE MEDICAL EXAMINER TO THE COMPANY[1]

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IN bringing this subject before you it is not my intention to discuss in detail the many important medical problems, connected with the examination of candidates for life insurance, which are not yet finally settled. I wish to speak on certain general aspects of the subject, dwelling specially on such points as the relations which should subsist between the company and their medical adviser, the remuneration which ought to be meted out to the latter, and certain matters of importance in connection with the technique, so to speak, of medical examination, and in connection with certain questions of health on which opinions differ.

By Life Assurance we understand an arrangement made between two contracting parties—the proposer or insured, and the insuring company—by which the latter binds itself to pay to the legal representatives of the former at his death, or to the insured person himself on his attaining a certain age, a sum of money, agreed upon at the time the contract is made, augmented, it may be, by subsequent additions termed bonuses, provided always that the insured pay annually, monthly or weekly as the case may be, a sum of money determined by his age and state of health at the time of insuring, and known technically as the premium. The premium agreed upon at the time of making the contract cannot afterwards be altered. It is required by statute that to constitute insurance properly, a stamped document be employed, termed the policy.

Until lately the plan almost universally adopted in insuring was the payment of premiums during the whole term of life; within the last ten or fifteen years, however, it has become increasingly common to have the payments calculated for a definite number of years, *e.g.* fifteen, twenty or twenty-five, after which they cease, the sum being payable to the legal repre-

[1] Read at a meeting of the Glasgow Southern Medical Society on May 1, 1902.

sentatives of the insured at his death, or to himself, in the case of endowment policies, when he attains a certain age. There are usually two rates of premium, those who pay the higher having the privilege of participating in the profits of the company, usually stated in the form of "bonuses," and declared quinquennially by most of the large companies. These are added on to the capital sum and often greatly increase it. On the lower scale the assured is certain that the sum insured for will be paid at his death, but no addition will be made to it. It would occupy too much space were one to try and trace the early history of Life Assurance and of the Friendly Societies which have existed now for many years. Suffice it to say that the insurance offices of the present time are almost legion, and that they may be divided into three classes :—

(1) The Mutual, in which the members themselves constitute the company, and in which, after the expenses of management have been paid and due provision made for a reserve fund, the whole of the profits are divided among the insured.

(2) The Proprietory, in which the proprietors raise a capital which is to be pledged for the payment of the claims if the premiums do not prove sufficient, and a fixed sum only is paid to the insured, and whatever profits do accrue are divided among the proprietors. Practically speaking, such companies do not now exist.

(3) The Mixed (or what are now termed Proprietory), in which the proprietors take a portion of the profits, the insured participating in the remainder.

As examples of the first class may be named the Scottish Widows', Scottish Provident, National Mutual Life, National Provident, and the Scottish Amicable; and of the last, the Edinburgh Life, North British and Mercantile, Scottish Union and National, and the Liverpool and London and Globe.

The construction of tables of premiums for different ages, for different periods of payment, for participation in profits, and for endowment policies requires the exercise of the greatest care on the part of the constructor. He keeps before him three points: (1) the interest and the rate at which money accumulates at compound interest; (2) the rates of mortality, based of late years on the English Life Tables of Dr Farr and the great experience of the Institute of Actuaries; and (3) the allowance

which must be made to cover all expenses of administration, and any fluctuation in the rate of interest which, if left unprovided for, might vitiate his calculation. As regards the tables of mortality, these have now been studied so thoroughly and widely that the liabilities of the office, spread over a fair number of years, can be calculated to a nicety, so that if the premiums are properly arranged, it is next to impossible but that the office should pay.

II. Having thus sketched the general principles upon which life assurance is based, let me proceed to the consideration of the relationship of the medical examiner to the company. Practically speaking, every office of repute exacts that proposers shall undergo a special medical examination, the object of which is, in general terms, to determine whether or not the applicant is likely to live as long as, according to the tables, a healthy man of his age should. But in the latter part of last year, if not earlier, a prospectus was issued by a company, drawing attention to its plan of allowing a monthly payment of premiums and of doing away with the customary medical examination. They reserved the right, however, of communicating with the proposer's private medical man in order to assure themselves of the truth of any statements regarding his health made in his proposal. Let me offer this advice to any who as medical men may have to deal with such a company: (1) insist on being paid for your information in the same way and on the same scale as if you had made an ordinary full examination; and (2) give no information regarding your patient to the company without written instructions to do so from the former, otherwise the consequences might be very unpleasant. It may be added that this company only pays one-third of the sum assured for if death occur in the first year and two-thirds if it occur in the second year, so that, as has been remarked by another writer on this point, many proposers would no doubt prefer to undergo a medical examination rather than be deprived of so substantial a portion of their principal.

A medical man may act for a company either as chief medical adviser or as an ordinary medical examiner. At the head office we have the first of these. He not only examines such applicants as present themselves direct at the head office,

but he reads and criticises all the reports sent in by medical men elsewhere, and he acts as an adviser to the Board of Directors, especially in the way of determining how much a premium should be "loaded" in cases where the proposer cannot be regarded as a first-class life.

In large towns, as a rule, most leading companies send all their cases to one medical examiner, who acts really as an expert for the company in that town in precisely the same way as the chief adviser does at the head office. In the case of the country or smaller towns any medical man may be selected by the company, convenience being the chief consideration as a rule. Where large sums are insured for, the proposer may require to be examined by both the local man and the medical referee at the nearest large branch office or at head-quarters. I need not say that no man need accept the post or undertake the duties of medical examiner; but if he does, he is bound to make the interests of the company his chief consideration. Even though he be the private medical man of the proposer, he must in this case make his patient stand in a secondary position to the company, and withhold no information regarding the applicant's past or present health, habits or occupation, which should be communicated in order to enable the chief medical adviser to judge fairly of the eligibility of the case. No man is obliged to act, but if he accept a fee he is bound to serve the company honestly for it.

The statement he makes regarding the proposer is a confidential and privileged document. No action for damages could be brought against a medical man by a rejected "life" for anything stated by him to the company, and embraced within the scheme of the ordinary examination. The very fact that the proposer appears for examination is tantamount to permission to make any statement that may be necessary. In most companies one page of the examination form is given up to the queries regarding the past and present health, family history, etc., put by the medical man and the answers given by the applicant, and at the foot the latter signs his name to a declaration that the answers are correct and true, the examiner acting as a witness, and signing too. One thus always has the proposer's name on the medical form, and written by himself. Although these statements are termed "confidential," they are,

strictly speaking, not so, as in the ordinary course of business they are handled and read by several persons, lay as well as medical. But they are, or should be, confidential as far as the office is concerned, the confidence being of a different order to the professional secrecy which exists between a private patient and his own doctor. It is, as a rule, I think, inadvisable that a proposed life should be examined by his own medical man. Many offices make no objections to this, especially if something be known about both the medical attendant and the client, and if the sum insured be not very large. A medical man in relation to his own patient may be placed in rather an awkward predicament with regard to some family condition or habit referring to the client, which he is bound in honour not to conceal if the company might possibly be harmed thereby. And yet it has happened that cases have arisen where it would have been better had the usual medical attendant been the referee. To quote an actual case: a man who, as a rule, lived temperately was given to occasional violent excesses in drink, and had twice had delirium tremens. This was known only to his wife and own medical man. Except for these rare outbreaks he was a very temperate person, a pillar of his chapel, and a composer of hymns (and their tunes) used in worship there. In one of his quiet periods he determined to insure his life, being about thirty-five years of age. The company asked his own doctor to examine at first, but when he wrote before the examination to say that his fee would be one guinea, they declined, stating that half that amount was all they gave. The case was accordingly handed to another examiner, who accepted the lower fee, and, knowing nothing of the peculiar habits of the proposer, passed him at ordinary rates. In two years he had another outbreak, in which he cut his throat, the company having to pay up. It is quite clear that the opinion of the usual medical attendant would have made all the difference, and this opinion they forfeited through their own niggardliness in reference to his fee.

III. This brings me directly to my next point, viz., the remuneration of medical examiners for life insurance. Let me state at the outset (if I may be permitted to strike a somewhat personal note) that the company for which I act treats me honourably, and pays me in an adequate manner. At the

same time it is unfortunately only too true that many abuses exist still in connection with medical fees in this respect.

A medical man examining for life insurance is undertaking a very responsible duty, and one by which the company is going to profit in a very distinct way. The examination takes a reasonable amount of time to do properly, and it requires all one's ability frequently to detect the early signs of such important diseases as phthisis, locomotor ataxia, pernicious anæmia, malignant disease, and other conditions which may lead to early death. I maintain that a life assurance examiner should be well paid, and one need have no qualms in dealing with a company. One may at once disabuse one's mind of any question here of philanthropy and charity. Life assurance is a purely commercial matter now, whatever once it may have been; it is a very paying business, in which officials and managers are well salaried, and if anyone deserves proper fees it is the medical referee, since, as pointed out at the beginning of this paper, one of the most important factors in insurance is the expectation of life which the proposer may be supposed to enjoy, and on this the examiner is the sole and final authority.

It is a common practice to give a fee of 10s. 6d. in cases where the sum assured is small, say £100 or £200, and 21s. where larger amounts are at stake. Perhaps one can hardly grumble much at this, but when one is asked to accept a half-guinea fee for an insurance of £500, it is clear that a great injustice is being done to the medical examiner. The examination is a very serious matter, and is really of the nature of a consultation, and should be properly paid for. I am decidedly of opinion that for every policy of £100 and over the full fee of one guinea should be paid, while for special cases the remuneration should be higher. The importance of the examination in the eyes of the company may be gauged from the following quotation taken from a letter sent out by the Prudential early last January to their medical referees, while at the same time they were adding instructions which would make the examination more stringent and lengthy. The quotation runs as follows: "We need hardly add that we attach the greatest importance to these reports, and recognise the valuable protection afforded by the efficient way in which the examinations are made by our medical referees." But, it

may be added, it is not proposed to make any addition to the emoluments of the excellent medical officers who are acting so satisfactorily for this company, whose funds are nearly £50,000,000!

No doubt one important cause of this low scale of payment is to be found in the crowded state of the profession, and in its want of combination on such matters. These points are perfectly well known to insurance companies, who are quite aware that if Dr Jones refuse to examine under 21s., they will easily get a report from Dr Brown for half that sum. It is one of the functions of a Society like this to see that a reasonable and proper fee is given for such responsible work.

A very short time ago (Dec. 1901) a long letter appeared in the *British Medical Journal*, written by Dr Selfe Bennett, who examines for several large English Companies, drawing attention to a very flagrant form of abuse in this connection. The facts of this particular case were as follows:—

He was asked by a company to examine jointly with the company's own medical referee a proposer who desired to effect a policy of no less than £70,000, having already insured for one of £30,000. Now, practically no English offices take on a greater individual risk than £10,000, so that this £70,000 insurance would be distributed amongst seven offices at least, probably more. Well, Dr Bennett made his examination and sent in his report, for which he received the paltry fee of 21s. Now, mark you, not only was he, as consultant, asked to make the examination at the office (*i.e.* not at his own house), but this one examination was to suffice for the insurance of the whole £70,000. The inexperienced and simple might fancy that each of the offices taking part in the risk would have the client examined, and each pay a fee. Not at all. The one report (presumed to be a confidential statement between the examiner and the company asking for it) is handed round from office to office till enough are satisfied with it to enable the whole policy to be taken up. I think we may all agree with Dr Bennett that this constitutes one of the most glaring instances of professional "brain-sweating," and that to offer a consultant in such an enormous insurance a paltry fee of 21s., when his own ordinary fee for a consultation away from his own house would probably be £3, 3s., was simply iniquitous.

Yet this was done by one of the best known offices in Great Britain, an office with a capital of over £15,000,000.

IV. Some points of importance in the medical examination itself :—

I need not remind you again of the great value of this examination to the company. It is through it that sound lives are obtained, and it is in virtue of the latter fact that such low premiums can be charged and such high bonuses offered. As Dr Vivian Poore says in his *Treatise on Medical Jurisprudence*, there would be no need for the companies to disturb their minds about medical examinations *provided everybody who passed the office door came in and insured*, for the life expectations over large communities keep so steady that it would simply resolve itself into a question of calculating the premiums. Only, as good and bad lives would be mixed together, the premium would naturally be higher than under existing circumstances. As things stand, the medical examination plays a very important part, and in my opinion will continue to play it.

There are one or two points to which I would like specially to refer.

(1) The heart and lungs are the most carefully examined organs in all cases, and in every case I consider that the proposer should be stripped to the waist. Occasionally one may allow a very light under-vest, which can be readily lifted or opened, to be retained; but in nearly all cases the client should be fully uncovered from the waist up. Most forms contain spaces for the measurements of the chest at full inspiration and full expiration. The really important point in this is *not* the actual size of the chest, but the *degree of expansion* of which it is capable. It is quite obvious that a barrel-shaped emphysematous chest of 40 inches is not so desirable a possession as a 35 inch one which can expand well. There should always, in health, be 2-3 inches between the full inspiration and full expiration measurements. We do not now regard the occurrence of phthisis in a brother or sister, one uncle, aunt, or parent as a bar to insurance, provided the proposer is perfectly healthy, has a well-formed chest, pursues a suitable occupation, and has reached the age of thirty. The case would be quite different with a thin and anæmic lad of twenty-one, who had lost a mother

and two sisters from consumption, and who was employed as a clerk. Such a client would not be admitted, or only with a premium so heavily loaded as to be practically prohibitive.

Is a man to be rejected because he has an organic mitral lesion? In regard to this, opinion has changed greatly within the past decade, and it is now recognised that such a proposer may be admitted to insurance provided that (*a*) the condition has existed for a few years at least; (*b*) compensation is good; (*c*) the other organs are healthy; and (*d*) the age is not over thirty-three, or thirty-five. He may be rated-up ten years, or better still, it may be arranged that all the premiums be paid in a limited period—say ten years. I would not care to pass a case with an aortic lesion. A simple aortic stenosis may not in itself be a very serious matter, but whereas mitral valvulitis is most commonly due to rheumatic, non-progressive endocarditis, aortic lesions are, as a rule, an indication of degenerative and atheromatous changes in the cardio-vascular system, and tend to be progressive, leading to angina pectoris, aneurism, fibroid myocarditis, and so forth.

(2) With reference to the nervous system, I think it a matter of considerable importance, wherever one has the slightest suspicion, to test the patellar reflex. It is so easily done, and appeal ought to be made to it in all cases where doubt exists as to the integrity of the nervous system. I do not know that there is any serious disease of the spinal cord which, in its early stages, can be more easily hidden from an insurance examiner than tabes dorsalis. Gastric crises, girdle sensations and lightning pains, difficulty in micturition and in defæcation are all largely subjective phenomena which can be easily denied. The fundus occuli no one would deem it necessary to examine, while the extent of the field of vision is not usually explored. So I say, if one wish to get a clue readily and without much fuss, let the knee-jerk be tested in any suspicious case.

Where any purulent discharge from the ear exists, the case should be postponed till the condition is put right—*i.e.* if such be feasible—and has remained right, say, for a year. A slight discharge, due to a mild form of catarrh, may exist for a long time, occurring at infrequent intervals, and compatible with good, nay, the best of health. But where the

discharge is offensive, where the probe can reach necrosed bone, and where the mastoid is tender, the case should be uncompromisingly rejected.

What about syphilis? This is sometimes a somewhat difficult matter to deal with. Are we, as some recommend, to ask all male proposers plainly whether or not they have had the disease? For my own part, I think this is unnecessary; there is usually provision made for the insuring party to make a voluntary declaration in the queries relating to previous health and various illnesses since childhood. In this and other indirect ways, one may find out about it. If a man has had the disease, if three to five years have elapsed since the primary stage, and if treatment from the first has been thorough, I think he may be accepted at ordinary rates.

I might touch on many points of interest such as appendicitis, asthma, gastric ulcer, hernia, cancer and insanity, and various other morbid conditions which, from their proneness to recur, have an important bearing on insurance reports, but I shall content myself with referring but to two other conditions, and these are glycosuria and albuminuria.

(1) Now glycosuria is no more a disease than dropsy is; it is a clinical manifestation or physical sign of disordered health. So it may quite possibly be the case, and indeed often is, that it is but a transient phenomenon in some slight disturbance if in the gouty habit, after some nervous or physical shock, as the result of too free indulgence in starchy and saccharine foods—conditions which may quite well be put right. But when glycosuria occurs along with polyuria, thirst, emaciation and a keen appetite, we are dealing with a real morbid entity, *viz.* diabetes mellitus, a disease just about as unenviable as anything one may have to deal with. I need not say that the urine should be examined in every case without exception, and care should be taken to prevent fraud. I reject at the time every case which shows glycosuria, but in every such case intimation is made that it is only postponed, say for three or six months, and that the proposer should seek medical advice, and then re-appear for re-examination. In testing I use fresh Fehling's solution, which I prepare myself. If after thorough boiling with half its volume of the urine there is no opacity whatever, the test is considered negative. If a copious re-

duction takes place, it may be repeated, using a smaller amount of the urine, and considered positive. If reduction be scanty and doubt arise, I always fall back on the phenyl-hydrazine test.

(2) The presence of albumin in the urine is always an unsatisfactory sign in an insurance client, and not many years ago would have led to total rejection without any further consideration of the matter. At the present time, however, the existence of functional, cyclical or postural albuminuria, as it is called, is well recognised, and it is known that men exhibiting it may be to all intents and purposes quite healthy in every other respect. Unfortunately we do not know enough about it to enable us to decide unhesitatingly that such a case owes its albuminuria to functional disorder and such a one to organic lesions. So it is better, at the first examination, if albumin be present, to postpone the case, making a re-examination say six months later. If it be found that small traces of albumin persist in a urine whose specific gravity is *not* under 1015, and where tube-casts are absent, if the client is below thirty-five years of age, is healthy in other respects and shows no sign of cardiac hypertrophy or of vascular degeneration, I should be inclined to accept him, with, say a five years' addition, for insurance in an endowment or investment policy.

One concluding remark. When death does occur, the company very properly demands a copy of the certificate of death from the registrar, and some companies also ask for a written statement from some friend (or friends) of the deceased who have viewed the body after death, and can testify that it is that of the person who is said to have died.

But in not a few instances the company asks for a separate certificate from the medical attendant, and do not propose to pay a fee for this. Now I should like to point out that a medical man's duty ends, so far as the giving of certificates gratis is concerned, when he signs the death-certificate, and anything required further should be paid for on a proper scale. In the next place, the insurance company should not apply to the medical attendant. Their dealings are not with him, but with the executors of the insured person, and it is they who have to furnish proper proof of death in order to uplift the policies, and it is they therefore who should both apply for the extra medical certificate and pay the fee for the same.

TRAUMATIC KERATITIS IN THE NEW-BORN

By ROBERT JARDINE, M.D., F.R.S.Ed.,
Senior Physician to the Glasgow Maternity Hospital, etc.

IN the Glasgow Maternity Hospital, on January 20th, 1901, a male child weighing 9¼ lbs. was delivered by axis-traction forceps through a pelvis with a true conjugate of 3½ inches. A few hours after delivery, the house-surgeon noticed that, in addition to some bruising of the right temple and upper eyelid, the whole of the right cornea was more or less opaque. I saw the case on the following day, and came to the conclusion that the opacity had probably been caused by pressure during delivery. I asked my friend Dr W. Ernest Thomson to examine and treat the case. A similar condition had never been noticed by any of the previous obstetric physicians nor by myself; but, if our surmise that the condition was due to pressure was correct, other cases would be sure to occur. A careful watch was kept, and on February 27th a case was observed with marked opacity in both eyes. Since then we have seen four or five additional cases, all after difficult deliveries.

Before the Ophthalmological Society of the United Kingdom, Dr Thomson read notes of my first two cases and of a third one which he had seen at the Eye Hospital under Dr Andrew Wilson.

None of the members of the Society had seen similar cases, but since then one has been shown by Dr L. V. Cargill. The following notes of these cases are taken from the recently published twenty-second volume of the *Transactions of the Ophthalmological Society*:—

CASE I. Dr Thomson reports that on January 23rd (*i.e.* three days after birth), "there was sub-conjunctival ecchymosis in both eyes, but the left cornea was perfectly clear. The right cornea was hazy, to the extent of making observation of the pupil difficult, except on focal illumination, the opacity being slightly denser in the centre than in the periphery; surface lustre was lost, and, on magnification, the opacity was seen to be rather superficial, and composed

of flocculent, closely-packed spots. No vessels or tracks of vessels were visible. The pupil was active."

"On the 27th there was decidedly less peripheral opacity, though in the centre it was distinct, and the surface dull. The pupil was dilated, but no details of the fundus could be made out. I expressed the opinion that the case was traumatic, and had occurred during labour."

On March 11th the case was again seen by Dr Thomson, and he reports:—"The opacity had undergone a remarkable change. When last seen there had been a general corneal haze, denser in the centre. Now there was a white linear scar extending almost vertically downwards across the cornea and just to the temporal side of the middle line, with a second sharp linear opacity parallel to it. On each side of the principal sharply-defined line was a haze of much less intensity, most marked near its centre. The surface of the cornea was smooth."

When the child was a year old, Dr Thomson reports:—"The opacity is disappearing, but is still quite distinctly visible. The treatment has consisted in the use of yellow oxide of mercury ointment."

CASE II. This child, a female, weighing 7 lbs., was delivered with forceps through a true conjugate of 2¾ inches. There was rather a deep depression of the left frontal bone, and the left eye bulged forwards. The pupil was dilated and the reflexes gone. The right cornea was opaque all over. A large blood-clot soon filled the left conjunctival sac, and it looked almost as if the eye had been dislocated and destroyed, but on removing the clot the eye was seen to be intact, except that the cornea was opaque, but to a lesser degree than the right one.

Dr Thomson reports:—"When I saw the case, four days after birth (March 3rd) the left upper lid was swollen, and the conjunctiva chemotic. The cornea presented a faint haze, with very slight loss of polish. There was a depression in the left temple said to be caused by pressure of the sacral promontory. The right eye, in the neighbourhood of which the forceps blade had been applied, presented an appearance almost exactly similar to that described in the first case at a similar stage. The cornea was cloudy all over, although less

so than in the first case, and the opacity was made up of minute discrete spots. Surface lustre was lost. There was no trace of corneal vascularity. Sub-conjunctival ecchymoses were present but no chemosis. Dr Leslie Buchanan also saw the case at this period, and agreed in the diagnosis of traumatic keratitis.

"On March 11th, eight days later, the child was seen again. The *left cornea*, which at first was only slightly hazy, now presented a linear scar in almost exactly corresponding position to that in the right eye of the first case. Its density was hardly so great, and it was slightly further to the temporal side. The right cornea was quite different. When first seen, the opacity was uniformly over the cornea, and rather less in density than the early opacity of the first case. Now it had become very much denser; so dense that the pupil could only be made out with great difficulty. This patient has not been seen again."

CASE III. This child was brought to the Eye Hospital when five weeks old. The delivery had been a difficult forceps one through a contracted pelvis. The left eye was swollen, and contused with blood effused into the conjunctiva. A clear view of the cornea was not obtained until the child was three weeks old, when the opacity was noticed. The condition was exactly the same as in Cases I. and II.

CASE IV. This case was shown to the Ophthalmological Society by Dr L. V. Cargill "as an example of those described by Dr W. Ernest Thomson."

The child had presented by the brow and delivery had been effected with forceps. The condition in the eye closely corresponded with that described in the other cases.

Since Dr Thomson wrote his paper we have seen some four or five other cases all of which have occurred during difficult deliveries. In all except one there has been a specially dense band, sometimes two, in the vertical axes of the eye near the centre. In several of the cases I have noticed the opacity immediately after delivery.

In one of our last cases we were unable to resuscitate the child; a post-mortem examination of the eyes revealed that the condition was really caused by pressure, but I shall not anticipate Dr Thomson's report of the case.

The condition cannot be a new one, and yet it seems not to have been previously described. Ophthalmic surgeons must have seen these cases from time to time and no doubt ascribed them to congenital conditions. Now that attention has been drawn to the matter it is to be hoped that obstetricians will pay special attention to the corneæ in all cases of difficult deliveries, especially in high forceps cases.

Clinical Records

NOTES OF THREE OPHTHALMIC CASES OF INTEREST

By W. ERNEST THOMSON, M.D.,
Surgeon to the Glasgow Eye Infirmary; Ophthalmic Surgeon, Glasgow Maternity Hospital

I. *Two Contrasting Cases of Congenital Ptosis.*

THE surgical treatment of ptosis is proverbially unsatisfactory. During the past few months two cases have come under my care which illustrate the necessity for selecting different operative methods in different cases.

Geo. P., aged 14, attended the Glasgow Eye Infirmary desiring operation for a droop of right upper lid. A previous operation had been done, probably a removal of skin only. The lid covered about three-fourths of the cornea, and the ptosis was associated with a considerable inward and downward deviation of the eye. There was plenty of skin to spare. I decided upon the modification of Hess's operation described by G. W. Roll in the *Transactions of the Ophthalmological Society*, vol. xxi. The eyebrow having been shaved, an incision is made along its length. The skin of the lid is then completely dissected down to the lid margin, a pocket of skin being thereby formed. Three loops of silk are passed through the dissected flap quite close to the ciliary border, up in the cavity of the pocket, through the upper lip of the eyebrow incision, and then the ends of each are knotted together over rolls of plaster or tubing. The immediate result of this operation is very great; the skin of the lid is tucked up in a deep fold, the cornea, and the sclera above it, being exposed and the lid margin everted. In this particular case the ultimate result, though a great improvement on the original condition, was somewhat disappointing considering the very

large immediate effect. There has been no complaint of double vision, no doubt on account of the very considerable degree of strabismus.

There is, of course, no visible scarring in this operation, as the only incision is in the line of the eyebrow, but for some months after operation there remains considerable thickening of the tissues of the pocket-shaped flap.

The second case, contrasts with the foregoing.

Wilhelmina C., aged 19. Partial congenital ptosis, bilateral, but more marked on left side. With the head tilted back in the position chosen by the patient, the right lid covers about one-third of the pupil, the left two-thirds. There is no skin to spare in either lid, there being no fold at all.

As there was no fold in either lid, Hess's operation would have made an ugly contrast. The Panas operation, or any one involving much scarring, would have resulted in considerable disfigurement. Besides, there was not a particle of skin to spare.

In spite of the fact that the levator was powerless I determined upon Eversbusch's operation in order to bring the level of the left lid nearly to that of the right.

This operation consists in making an incision through the skin along the length of the middle of the lid, and taking a reef in the tendinous expansion of the levator. The reefing threads are brought out at the lid margin and tied there, and the skin wound closed. There is therefore only one linear cicatrix and no loss of skin.

The result of the operation in this case may be described as very fair, the two lids having nearly the same amount of droop. At any rate it pleased the patient. The cicatrix is quite sufficiently visible to indicate the amount of disfigurement which would have been left by one of the more skin sacrificing procedures.

II. *A Case of Mooren's Ulcer of the Cornea.*

Jane H., aged 57, came to the Glasgow Eye Infirmary on 2nd July 1902.

She gave the history that the left eye had been tender and easily affected by cold for some years. There was a superficial crescentic ulcer just within the temporal limbus of the left cornea, extending round about one-fourth or one-third of the corneal circumference. Pain in the eye, varying in severity, pupil active, tension normal. The ulcer was treated with the thermo-cautery. Gradual healing took place, but on 13th August, when I saw her for the first time, a new ulcer had

appeared along the lower nasal corneal margin. This was cauterised and the patient given ointment of yellow oxide of mercury. Healing again proceeded, but on 10th September two new areas stained with fluorescin and were cauterised. The eye remained free of pain and the ulcer gradually filled up, until on 1st October two more spots had to be cauterised. Almost the whole circuit of the cornea had now been made. On 8th October the left cornea was noted as completely healed; a broad band of opacity extended round its periphery leaving the central area free. V. A. R. & L. = $\frac{6}{18}$. The patient stated that vision had been much reduced, but unfortunately there is no note of the vision at the beginning of the complaint.

On this same date, for the first time, a crescentic marginal ulcer was noted in the right cornea almost exactly in the position taken up by the first ulcer in the left eye. This at the date of writing is following a similar course and is being treated in the same way.

I think there is little doubt that this case is an example of a rare form of ulceration designated Mooren's ulcer, or chronic serpigenous ulcer. The term rodent ulcer has also been applied to it. Mr Nettleship has collected seventy-one cases and described their general characteristics (See *Transactions Ophthalmological Society of the U.K.*, 1902).

The main characteristics given by him are: (1) Chronicity, from four to twelve months; (2) Occurrence in adults; (3) Occurrence in both eyes; (4) Symmetrical arrangement in both eyes.

The usual treatment is cauterisation. Some surgeons have had good results from iridectomy.

The prognosis is grave; though I have hopes that at any rate the left cornea in my case may not relapse.

Obituary

Dr George Hunter Mackenzie

WE regret to have to record the death, at the age of 53, of this well-known Edinburgh Laryngologist, which took place at his residence, 22 Heriot Row, on the morning of the 11th November. Dr Mackenzie had been in delicate health for several years, but it was only during the past summer that his malady—a chronic renal affection—assumed a more serious aspect; and the supervention of cardiac and pulmonary complications rapidly wore down his strength.

A native of Stonehaven, Dr Mackenzie studied his profession at Edinburgh University, where he graduated M.B., C.M. in

1873. After acting as an Assistant Physician in the Fife and Kinross Asylum, and also in the Gloucester County Asylum, Dr Mackenzie in 1877 took his degree of M.D., when he was awarded a gold medal for his dissertation upon "The Physiological and Therapeutical actions of Aconite and Aconitia."

Having resolved to devote his professional life to the department of the diseases of the throat, ear and nose, Dr Mackenzie studied for a lengthened period in London under the late Sir Morell Mackenzie, whom he assisted in his hospital work.

About 1879 Dr Mackenzie settled in Edinburgh, where he soon acquired an excellent practice and reputation as a laryngologist, his services being extensively sought by his brethren both in town and country. At an early period he became connected with the Edinburgh Eye, Ear and Throat Infirmary, Cambridge Street, the Throat department of which he was largely instrumental in developing. Throughout his career Dr Mackenzie devoted much time and attention to his duties at this institution, and he had large cliniques of students and graduates by whom his practical instructions were much appreciated.

Dr Mackenzie was a frequent contributor to the literature of his specialty, mostly in the form of papers communicated to the journals. His chief published work was "A practical treatise on the Sputum."

Dr Mackenzie held for a year the important office of President of the British Laryngological, Rhinological and Otological Association, and he also frequently took a prominent part in the business of the Laryngological Sections at the annual meetings of the British Medical Association, acting on one occasion as a Vice-President. He was a member of several foreign medical societies.

Although a man of quiet and retiring disposition, Dr Mackenzie possessed a large circle of professional and personal friends who held him in high esteem, and who now mourn his loss. He has left a widow and three children. J. O. A.

Special Article

THE NOTIFICATION OF PHTHISIS, AT THE MEDICO-CHIRURGICAL SOCIETY OF EDINBURGH

BY AN OCCASIONAL CORRESPONDENT

WHEN the medical profession decides for a given course, the general public, through their representatives, always come round in the end. The "Phthisis Movement" is no exception. At the Medico-Chirurgical Meeting, on the 19th November, the

strong lead of leading men showed that opinion has rapidly ripened on the administrative aspects of the problem—the biggest ever tackled by the medical profession.

Dr Harvey Littlejohn led off in a free exposition of striking figures and detailed arguments. Dr Niven and Dr Newsholme had been asked to come, but could not. Both have experience of "spade-work" in phthisis. Edinburgh is feeling her way. The question is not now what is medically desirable, but what is practically possible for the Municipality to undertake. Spitting—of course, but how to stop it? Everyone there felt that notices above the plane of vision are not of much inhibitive effect. Besides, are not many officials or servants forbidden to smoke, and if they chew shall they not spit—on the street? That secures better circulation of germs, partially drunk with nicotine. Dr Harvey Littlejohn's major point (in figures) was—is no method of detailed prevention (direct) to be applied to a disease that kills more than all other zymotics rolled into one? Liberty of the subject? No reply needed at this time of day. Rousseau, he believed, said that the convicts in the galleys at Genoa had "liberty" stamped on their chains. "The fetters of the bad self are the symbol of freedom" (Bosanquet). Voluntary notification has, in New York and elsewhere, led to compulsory. Let us voluntarily notify. The Local Government Boards (English and Scotch) refuse sanction to compulsory notification. Phthisis can be handled differently from other infections. Municipal Sanatoria? Difficult, but to come. Already there is free sputum examination. The Local Authority must co-operate, not interfere with the medical attendant—work with, through, and for him. Notification, says Koch, is necessary. Koch is a German and does not understand free institutions very well, but his opinion is a help. The tubercular *loci* must be known. New York knows them. Result? Great diminution in phthisis, culture stations, etc. Dr Logan Turner gave some details of these later. Notification and following action of Local Authority will benefit the poor consumptive most of all. Meanwhile, it must be voluntary.

Mr Lang Todd, Convener of the Health Committee, gave with moderation and point, the municipal view. He wanted compulsion, but the Corporation decided for voluntary. He emphasised the necessity for knowing the infected places. Overcrowding is always with us. We do what we can. Why does the Edinburgh Dean of Guild Court sanction the placing of water-closets in the badly-lit and badly-aired centre of new houses? The roof is an external wall! Until the Local Authority have the courage to put their heel on this piece of builders' quibbling, what hope have we? Sir Thomas Fraser, later, denounced the

one-roomed house. He was right. No one-roomed house can fail to be overcrowded almost all the time. Surely Edinburgh can do something handsomer than this? To relieve—100 beds will be provided—somewhere. Not, we hope, in the played-out City Hospital in Infirmary Street. Give the dying at least clean air.

Dr Philip emphasised the difference between the chronicity of phthisis and the acuteness of ordinary infections. His remarks were much to the purpose. Voluntary notification until we get compulsory. Notification on bacteriological diagnosis? Yes, for municipal action; not enough for radical prevention and cure. He advocated a Municipal Dispensary and organising Bureau, open-park treatment, with shelters, sufficient dinners, etc., for out-door cases. A hundred beds might then be of service.

Dr Lawson said patients' friends were waking up, but regretted the apathy of the general public. He advocated a Health Sub-Committee for phthisis alone.

Dr Noël Paton gave some emphatic and crisp facts on spitting. In American researches, 4 per cent cultures from street sputa contained tubercle bacilli. Voluntary notification he was entirely sceptical about. The Local Government Board for Scotland might be persuaded to sanction compulsion, if the measures to be taken were genuinely practical and adequate.

Dr Leslie Mackenzie enumerated the clauses of the Public Health Act and argued for their applicability, within limits, to phthisis. The Poorhouses and Parish Councils have, by stern necessity, been forced into providing accommodation—the real duty of the Local Authority for Public Health.

Dr Logan Turner gave some notes of his recent American visit. New York has left us all behind. Spitting is a penal offence punishable by a very heavy fine.

Dr Byrom Bramwell declared strongly for compulsory notification. The objections, he said, are not worth anything. To point his strong opinion, he moved the resolution on compulsion. Carried, *nem. con.* This is the striking result of the meeting. A copy will be sent to the Corporation and to the Local Government Board. Both bodies will do well to consider this seriously.

Dr Caverhill objected to voluntary notification as a breach of professional confidence. He urged compulsion, which protects the medical man.

Sir Thomas Fraser, in an elegantly and eloquently-worded appendix to the debate, said nothing against all those minor measures—notification, spitting, prevention, etc.—but declared it was mere trifling in comparison with the housing problem—

the necessity for uncrowding. Emphasis should be placed on the environmental factor in the production of phthisis, and the possibility of protecting the person against the germ. The one-roomed house is a sanitary abomination. Glasgow, through Dr J. B. Russell, showed that. In Naples, where phthisis is least, less crowding, more air about houses, alone did it. Everything else is a makeshift. This alone is radical. Let there be ticketed houses, as in Glasgow.

Unquestionably this goes to the root of the question. Notification will pave the way. It is striking to find a large meeting of medical men unanimous on the point—no qualification, no hesitation. Let the municipality weigh the matter seriously, and the result will not be doubtful.

Meetings of Societies

The Edinburgh Medico-Chirurgical Society

THE first meeting of the eighty-second session was held on Wednesday, 5th November 1902—Sir Thomas R. Fraser, President, in the chair.

The other office-bearers for the Session are:—Vice-Presidents—Dr C. E. Underhill, Dr James Ritchie, and Dr J. O. Affleck; Councillors — A. G. Miller, F.R.C.S., Dr Wm. Russell, Dr D. Noël Paton, Dr A. Logan Turner, Dr Edward Carmichael, Dr Thomas B. Darling, Dr William Stewart, and Dr Wm. Geo. Sym; Treasurer—Dr Harvey Littlejohn; Secretaries —Dr Melville Dunlop and Alexis Thomson, F.R.C.S.; Editor of Transactions—Dr William Craig.

Dr Angus Macdonald, Dr Archd. N. S. Carmichael, and Dr W. Leslie Lyall were elected members of the Society.

Dr Byrom Bramwell showed cases of tabes, disseminated sclerosis, and syringomyelia treated by Fränkel's method of co-ordinated muscular exercises. There had been improvement in the condition of all three cases.

Dr F. D. Boyd showed, for Dr Geo. A. Gibson, (1) a case of acromegaly in a female patient, and (2) a boy affected with pseudo-hypertrophic paralysis in a somewhat advanced stage.

Mr Alexis Thomson showed a boy, aged 16, who was admitted to hospital fourteen days after a crush between buffers, and in whom there had developed a traumatic cyst of the pancreas. Within the cyst there were four or five pints of brownish fluid containing methæmoglobin, but no trypsin. The cyst was drained for fourteen days, and the boy made a good recovery.

Mr H. J. Stiles exhibited: (1) a case of congenital umbilical urinary fistula in a girl aged 14 years; (2) a case of spina bifida and hydrocephalus in a child aged four months; and (3) a case after operation for tuberculous disease of the temporal bone.

Mr C. W. Cathcart showed a male patient who had recovered after having been trephined for severe fissured fracture of the skull, associated with meningeal hæmorrhage and laceration of the brain.

Dr Chalmers Watson exhibited photographs illustrating some clinical features and pathological appearances of chronic disease of the nervous system in horses.

The following card specimens were exhibited:—By Dr Harvey Littlejohn: (1) two cases of fracture of the sternum, with rupture of the heart, produced by direct violence; (2) suicidal stab wound of the heart produced by a pair of scissors; (3) hæmorrhage into the cerebellum, causing sudden death in a boy aged 18.

By Dr Alex. Bruce: dissecting aneurism of the aorta.

By Mr Caird: (1) large gall-stone removed from gall-bladder of female aged 65; (2) parts removed after excision and end to end suture in a case of malignant stricture of the colon (ascending colon, cæcum, and ileum), and showing also the ileo-cæcal valve and valve of Gersuny; (3) prostate removed after method of Freyer.

By Mr C. W. Cathcart: (1) sarcoma of femur; (2) bullet lodged in lumbar vertebræ; (3) tumour of soft palate.

Dr W. Allan Jamieson read a paper on two cases of mycosis fungoides. The one case exhibited an unusual phase and terminated fatally; the second case presented the more ordinary features, and was much benefited by exposure to the X-rays. The first case was that of a man, aged sixty-six years, who had acquired syphilis forty-three years previously. Three years ago transient lesions made their appearance. A year since there developed a scaly itchy eruption on the head and face, and partially on the limbs, becoming red, weeping and crusted, breaking down into eroded or ulcerative areas which healed over, again to become raw. There was loss of hair over the affected part of the scalp. The case was characterised by superficial infiltration followed by extensive ulceration, but no development of tumours. Blood examination early in the case showed slight leucocytosis and eosinophilia. No. improvement was manifest under local or antisyphilitic treatment, the latter being harmful rather than beneficial. Mental aberration and marasmus supervened; the patient was removed to an asylum where he died.

The second case, one of classical mycosis fungoides, was

that of a woman fifty-four years of age. She was admitted to the hospital as an out-patient on the 24th June 1902. There was a history of a premycosic stage of erythrodermia and itchy eczematoid lesions lasting ten years, and the patient had experienced two attacks of erysipelas without benefit. On admission to the Infirmary there were many tumours, some fungating and sloughing on the face, erythrodermic and scaly patches, and some tumours on the body. On the 26th July the leucocytes numbered 13,000 per c.mm., and the proportion of polymorphonuclears was increased. There was complete disappearance both of tumours and eczematoid eruptions under the X-rays, which, however, could not wholly prevent new lesions appearing elsewhere, though these again yielded to the rays. Dr Allan Jamieson showed illustrations, photographs, and microscopic preparations illustrating the cases.

Commenting on the cases, Dr Norman Walker stated that improvement in the second case began on the third day after treatment by X-rays had been commenced.

Dr Aitchison Robertson read a paper entitled "A Contribution to the Study of the Local Distribution of Cancer in Scotland."

The author stated that he made the communication chiefly with the view of drawing the attention of medical men to the importance of the subject. A disease which caused the death of above 7 per cent. of all women above the age of 45 was one which compelled attention. He proceeded to give statistics to prove that cancer had undoubtedly increased during recent years, and stated that he was of the opinion that a more careful death certification would raise the cancer mortality still higher.

Dr Robertson had personally visited many of the larger institutions, infirmaries, etc., throughout Scotland, or had the statistics regarding cancer deaths forwarded to him, and from the registers he had been able to allocate to their usual places of abode those who had died from cancer away from home. Many such cases must however have escaped observation, and so the figures which were given could thus only be considered as approximately correct. He ventured to affirm, however, that they afforded a more accurate distribution of the cases of cancer than appeared from the reports of the Registrar-General. The author demonstrated two maps of Scotland coloured to show the difference between the local distribution of cancer in Scotland, as made up from the Registrar-General's returns, and as "corrected" according to his inquiry. He instanced many cases to show how the two maps differed. Taking, for example, the county of Edinburgh, it might be termed healthy as regards cancer, as shown by the statistics given by the

Registrar-General, having merely the average mortality of the whole of Scotland. In the same map the city of Edinburgh seemed to have a very high cancer mortality (5·15 per cent.). The "corrected" map, however, exhibited a difference. When the deaths of strangers were deducted from the city of Edinburgh and apportioned to their own towns or counties, it was found that the cancer mortality of Edinburgh sunk practically to the normal average of the whole of Scotland (4·13 per cent.); while the cancer mortality of the county of Edinburgh underwent an increase to almost 5 per cent. The maps showed at a glance that the cancer mortality was raised in Kincardineshire and Sutherlandshire from about the normal average (4·02) to considerably above it. In certain counties which had a cancer mortality above the normal, the correction raised it still higher; as, for example, Haddingtonshire was raised from 4·25 to 5·59 per cent., and Peebleshire from 4·68 to 5·07. The mainland rural district of Selkirk afforded the most remarkable example of increase due to correction. By the usual returns the cancer mortality appeared to be 4·29, while in reality it was almost 6·60 per cent. The counties of Fife, Clackmannan and Kinross, Kirkcudbrightshire, Dumbartonshire, Inverness-shire, Ross and Cromarty and Argyllshire have all their cancer percentages increased by correction. Linlithgowshire, Stirlingshire and the Shetland Isles, which all appeared to have a subnormal cancer mortality, are raised by correction to the normal average. Nairnshire, however, holds the record in the excessive amount of its cancer mortality. Uncorrected this amounts to 8·77 per cent., but on the addition of the deaths of residents out of the county this figure is increased to 9·73 per cent. Neither Orkney nor Shetland are as healthy as we would have thought.

It was the healthiness of the towns as regards cancer which detracted from the unhealthiness of certain country districts and so led to a general lessening of the cancer mortality over the whole of Scotland. Dr Aitchison Robertson showed by means of a chart that correction reduced still lower the cancer mortality of Glasgow, Dundee, Govan and Partick. The cancer mortality of Leith and Perth is raised by correction.

As regards the large town districts, Inverness has a high cancer death-rate, and this is still further heightened by correction. Forfar far exceeds this with 7·02 per cent. An apparent low cancer death-rate in Dunfermline is changed practically into a normal one, and in Kirkcaldy a cancer rate of 5·21 undergoes an increase to 5·81 per cent.

The mainland rural districts showed an almost complete cessation of the subnormal cancer death-rate. In most districts the figure is very greatly above the normal, and in several the

cancer death-rate is excessive when taken as a proportion of the ordinary death-rate. In every case also the correction has had the effect of raising this rate, and in some cases to a remarkable extent.

The author then proceeded to discuss the relation of the geological formations in Scotland in reference to the cancer mortality. Speaking generally, so far as his observations went, he was unable to trace any obvious relation between geological structure or dampness of soil and the incidence of cancer.

Dr Aitchison Robertson was also unable to trace any relation between the cancer mortality and the rainfall in the various counties, and stated that much more detailed and local information would require to be obtained before any definite statements could be made regarding this relationship. He also entered into the question of the amount and character of the food and drink in relation to cancer, and in conclusion he urged upon the medical profession in Scotland the importance of a combined investigation into the local incidence of cancer in the various counties with a view to the investigation of the causal relations of this dread disease. He felt sure that if a central committee were appointed that medical men all over Scotland would willingly furnish returns of cancer cases occurring in their neighbourhood together with the details of locality. These returns would be tabulated by the committee and much valuable information would doubtless accrue. In Germany 55 per cent. of the medical practitioners have supplied materials to the committee for the collective investigation of cancer, and Dr Robertson felt sure that were the same opportunity given to the medical men in Scotland they would as willingly further this inquiry.

Dr John Macmillan having referred to the frequency of cancer in Arran, Dr Norman Walker, speaking of the association of arsenic and cancer, said that he had been struck by Mr Hutchinson's insistence on this association, and he had made certain inquiries from prominent chemists, which corroborated Mr Hutchinson's statement that arsenic was prescribed very much more frequently than formerly. All the chemists consulted were of opinion that the increase was largely due to the fact that many proprietory preparations contained arsenic, which preparations were often asked for by the public. It seemed to him, however, that Dr Aitchison Robertson's paper, showing the very great variations in different parts of the country, did not support the theory that arsenic was an important factor in the increase.

Dr Harvey Littlejohn said it was unfortunate that death certificates were so frequently filled up in a lax manner. He

held that there was a real increase of cancer, indicated the necessity for correcting statistical returns according to age, and referred to the fact that there was really less mortality from cancer in Ireland than in either England or Scotland.

The President, in the course of his remarks, said that the iconoclastic paper read by Dr Aitchison Robertson showed that none of the conditions previously held to be the cause of cancer were really causal, and stated that the author had produced a "clean slate" regarding the etiology of the disease. Mr Wallace and Dr Bashford also commented on the paper.

Dr Dawson Turner read a paper on the treatment of cancer by phototherapy. The author drew attention to the physical and clinical differences of the chief forms of radiation, and then proceeded to deal with the treatment of external cancer before ulceration and after ulceration by mean of the Finsen Light and Röntgen Rays. In internal cancer only the latter can be employed. Exposure to the X-rays causes diminution of pain, loosens adhesions, causes an ulcerating and sloughing surface to diminish in size and heal up, and is followed by disappearance of malignant tumours. The author instanced eighteen cases, nine being of the mamma, treated by phototherapy. Of the eighteen cases, all but three showed improvement. Breast cases were the most successful, tongue cases were less benefited than any others. Recurrence is usually observed, and although in no case had a cure been effected, yet the disease may be kept in abeyance. The author referred in fuller detail to two cases, one being a sarcoma of the parotid gland, the other a recurrent scirrhus of the mamma. In the former case after twenty or more exposures, and in the latter case after eight exposures, there was to all appearances temporary disappearance of the local swelling.

Dr James Ritchie, referring to the case of the tumour of the parotid gland, said that the tumour, as seen from the mouth, never entirely disappeared under treatment, yet the improvement in the case had been very great.

A case of scirrhus of the breast and a case of sarcoma affecting the tonsil, Dr Gardiner said, had been benefited whilst under treatment by the X-rays.

A SPECIAL Meeting of the Society was held on Wednesday, 19th November, within the Royal College of Physicians, to discuss "The prevention of pulmonary phthisis, including the notification of the disease"—Sir T. R. Fraser, President, in the chair. A paper on the subject was read by Dr Harvey Littlejohn. Mr Lang Todd, Dr Leslie Mackenzie, Dr Philip, Dr Lawson, Dr Noël Paton, Dr Logan Turner, Dr Byrom Bramwell,

and Dr Caverhill took part in the discussion. The motions proposed were as follows:—1st. Proposed by Dr Byrom Bramwell and seconded by Dr Caverhill, "That in the opinion of this meeting of the Medico-Chirurgical Society of Edinburgh, the compulsory notification of pulmonary phthisis is desirable, and the Society respectfully suggests that the Corporation of Edinburgh should adopt it." 2nd. Proposed by Dr Noël Paton and seconded by Dr J. C. Dunlop, "That in the opinion of this meeting the Municipal Authorities be requested to take immediate steps to prevent the practice of expectoration, with a view to the prevention of the spread of pulmonary phthisis." Both these motions were unanimously carried.

Edinburgh Obstetrical Society

THE first ordinary meeting was held on the 12th November —the President, Dr James Ritchie, being in the chair.

The following office-bearers for the ensuing session were elected:—*President*—Dr James Ritchie. *Vice-Presidents*—*Senior*, Dr Haig Ferguson; *Junior*, Professor Simpson. *Treasurer* Dr Wm. Craig. *Secretaries*—Dr William Fordyce; Dr Lamond Lackie. *Librarian*—Dr Haultain. *Editor of Transactions*—Dr Lamond Lackie. *Members of Council*—Dr Milne Murray; Dr Berry Hart; Dr Brewis; Dr R. C. Buist (Dundee); Sir Halliday Croom; Dr Michael Dewar; Dr Matheson Cullen; Dr Moorhouse (Stirling).

Dr James Ritchie delivered his Presidential Address, and on the motion of Professor A. R. Simpson, received the cordial thanks of the members.

Dr William E. Frost read "Notes on a Case of Eclampsia, where rapid dilatation of the cervix was effected by Bossi's dilator." He stated that at the May meeting of the Society, Professor Simpson brought before the members the cervical dilator which had only recently been invented by Professor Bossi of Genoa. The action of the instrument and the indications for its use were then described. Leopold in the *Archiv für Gynækologie*, Bd. lxvi., published a report on twelve cases in which he had used the instrument: in seven for eclampsia, in two for very contracted pelves, and one of advanced phthisis, in four for severe uterine spasm and in one where the labour was complicated by pyrexia. The maternal mortality in these was *nil*. In the *Centralblatt für Gynækologie* for May of this year he published reports of other five cases of pregnancy complicated by eclampsia where equally successful results were obtained. Of the twelve cases, ten were primiparæ and two

multiparæ. Dilatation of the os was completed in from twenty to thirty minutes. In nearly all, uterine contractions began during the use of the dilator and continued with increasing force into the third stage of labour. In none was the perineum lacerated or did hæmorrhage ensue. Of the twelve children, seven were born alive, forceps having been employed in their delivery. Four were perforated, but these had died either before or during labour. Leopold's opinion is that Bossi's dilator is a most valuable instrument in the treatment of eclampsia and that Cæsarean section can no longer be regarded as the operation for eclampsia.

Dr Frost then proceeded to describe the case which he saw for the first time on the night of the 6th Sept. The patient was aged 40, an viii-para, and was in her eighth month of pregnancy. Since 10 A.M. on the morning of the 6th she had suffered from a severe headache, and about 6 P.M. she had been seized with the first fit. On the arrival of Dr MacDonald Robertson, shortly after six o'clock, the patient was semi-conscious, pupils were small and only slightly responsive to light. Labour pains had not commenced. Her bowels had moved twice, and urine had been voided several times during the day, though the total amount was small. A pill of one grain of opium was administered. At 10.30 P.M. a second fit came on, when the unconsciousness was more pronounced and the breathing was laboured. Dr Frost noted that the fit commenced by twitching of the eyelids, the mouth was drawn over to the left side, the head rolled from side to side, and the arms, trunk and legs became convulsed in the order mentioned. The fit lasted altogether about one and a half minutes. After its cessation, the pupils were medium in size and did not respond to light, the pulse was 108 with high tension, temperature 102·4, and respiration 30. There was no œdema. The uterine tumour reached to a hand's breadth below the xiphisternum. The os uteri admitted the tip of the finger. Diaphoresis was induced by hot bottles. It was decided to empty the uterus at once, and the patient having been anæsthetised and placed in the left lateral position, Bossi's dilator was introduced, at first without the shields, until the index registered 3·5 cm., when they were affixed, and the dilatation continued until the index showed 9·5 cm. There was little resistance to the dilatation up to 8 cm., but after this the resistance became so great that when 9·5 cm. was reached dilatation was stopped as the cervix might have been lacerated. Thirty-five minutes had been occupied in this dilatation. Vaginally it was found that the cervix had undergone an equal dilatation all round, but that a considerable rim remained. It was decided to apply forceps as the child's life was more likely

to be saved, and the head would dilate the cervix better than the breach. The application of the blades was found to be by no means easy, as the head was freely movable and above the brim. Thirty-five minutes were occupied in the delivery of the head. The body of a living female child was delivered; naturally and developmentally it corresponded to an eighth month's gestation. The placenta was expelled in ten minutes. The total duration of the delivery was about one and a half hours.

At 9.30 A.M. on the 7th Sept. the patient was unconscious, temperature 102, pulse 106 with high tension. She had had two severe eclamptic seizures during the night, both lasting over two minutes. The hot pack was employed, and profuse diaphoresis resulted. The urine contained three grains albumin per litre, blood and casts (granular and blood). Ten other seizures were noted during the day, each however becoming less severe until the duration of the last was only a few seconds. At 9 P.M. the patient was profoundly unconscious, pupils were pin-point and irresponsive to light. On the morning of the 9th Sept. the woman was still unconscious, but the pupils were larger and reacted feebly to light. By 7 P.M. returning signs of consciousness were observed. The urine gradually improved as regards albumin and urea, and the consciousness also returned. An attack of jaundice, however, supervened and lasted five days. Convalescence was slow owing to restriction in diet and to exhaustion; but on the 25th day the patient left her bed, and since then has gradually recovered. Subsequent examination of the urine has revealed the presence of minute quantities of albumin. At present there are no signs of œdema nor of cardiac hypertrophy. The onset of the eclamptic seizures appeared to be due to the presence of an unsuspected kidney lesion, and confirmation of this view is afforded by the persistence of the attacks for eighteen hours after delivery.

Professor A. R. Simpson recorded a similar case (which is detailed on page 492), and both gentlemen received the cordial thanks of the Society for their communications.

Edinburgh Royal Medical Society

24th Oct. 1902.—Dr Wood in the chair.

1. Dr Holmes read notes of a case of "Encysted serous pelvic peritonitis."

2. Dr Gilford gave some notes on a case of cancer of the rectum and showed the specimen.

31st Oct. 1902.—Dr Wood in the chair.

The inaugural address of the Society was delivered by Sir Halliday Croom.

7th Nov. 1902.—Dr B. P. Watson in the chair.

1. Dr A. B. Ross, Senior President, delivered his presidential address. He based his address on part of a well-known aphorism of Hippocrates—"Experience is fallacious: judgment difficult." He showed how the fallacy arises and wherein the difficulty of judgment lies. He thought the difficulty of judgment might be due to three main causes: (1) the imperfection of our senses; (2) the defective power which we possess of applying our minds absolutely to the making of an observation; (3) the effect on our judgment of preconceived ideas.

2. A dissertation on "Organo-Therapy," by Dr J. H. Pirie, was read in his absence by Dr Dickson. Dr Pirie referred to the strides that have been made in this form of treatment within recent years. He then proceeded to give an account of the various external extracts and internal secretions that have been used in the treatment of disease. He devoted a large part of his paper to the consideration of the therapeutic uses of thyroid and suprarenal extracts.

14th Nov. 1902.—Dr Prentice in the chair.

1. Dr B. P. Watson delivered his presidential address. He chose as his subject, "The fields open to the young graduate of medicine." He indicated the various openings for the young graduate, and discussed their relative advantages and disadvantages. He thought that everyone, whether he were going to be a specialist or not, should after graduation take a year or so in a hospital or do some "locum" work.

2. Dr M'Bride read a dissertation on "The Borderland between Medicine and Surgery." He began his paper by showing that there is no distinct line of demarcation between the two, and he gave many examples of cases in which the one overlaps the other. He next went on to show the importance of the examination of the blood in many surgical affections, citing as examples appendicitis and septic thrombosis of the sigmoid sinus in which leucocytosis is very marked. He concluded by advocating that each part of the body should be in the hands of specialists who would treat their own particular regions both medically and surgically.

The following are the office-bearers for 1902-1903:—Presidents—Dr A. B. Ross, Dr B. P. Watson, Dr Prentice, Dr S. A. K. Wilson; Secretaries—Dr H. J. Dunbar, and Dr Paul Matthews; Treasurer—Dr W. Macrae Taylor; Chairman of the Finance Committee—Dr J. Graham M'Bride; Curator of the Library—Dr D. M. Callander; Curator of the Museum—Dr Dods Brown; Chairman of the Public Business Committee—Dr C. J. Shaw; Editor of Transactions—John Allan; Sub-Librarian—A. P. Ormiston.

Glasgow Medico-Chirurgical Society

THE third ordinary meeting was held on Nov. 17—the President, Dr W. G. Dun, occupying the chair. There was a large attendance. Dr W. R. Jack showed a patient presenting rather a striking appearance due to great dilatation of the superficial veins of the abdomen. He was an iron-moulder aged 40, and had had indifferent health for 7½ years. In 1896 he was in the Edinburgh Royal Infirmary under Sir Thos. Fraser, when a diagnosis of aneurism was made, and again in 1897 when it was thought more likely he had an intra-thoracic tumour. In 1901 he was in the Glasgow Western Infirmary under Professor Stockman. The symptoms are a feeling of giddiness when stooping at his work, with swelling of the neck and a feeling of constriction. He has never had syphilis, but has had several attacks of pneumonia and pleurisy. Palpation, percussion and auscultation and the use of X-rays reveal no abnormality in the thorax. The abdomen also is normal. The probable diagnosis is a thrombosis of the inferior vena cava, but what its cause or nature is, cannot be stated.

Dr Alex. Robertson spoke on the case and Dr Jack replied.

Dr George Lamb, I.M.S. of the Government Research Laboratory, Bombay, gave an interesting account of his three years' work on snake-poisons, their physiological effects and antidote. The speaker said there were many poisonous snakes in India but only a few that might be considered very dangerous. These were certain members of (1) the Colubrine snakes, including the ordinary cobra, the king-cobra, and the krait (Bungarus); and (2) the Viperine snakes, of which a typical specimen was the daboia (D. Russellii). Dr Lamb stated at the outset that one could not tell from a study of one snake-poison what the venom of even a closely-allied species would be like; Calmette, he considered, had gone wrong on this point. His observation that evening would be confined to the cobra and daboia. The poison-gland (the homologue of the parotid in man), its duct and the fang were first described, and then the method of getting the venom. In this, a native trained to the work, seizes the snake behind the head, and lets it strike with the fang through a rubber cover stretched over a wine-glass. The snakes are "milked" in this way every fortnight. In captivity they will not eat, and must be fed, a funnel being placed in the mouth, and raw egg and milk poured down!

The venom is a straw-coloured liquid, acid in reaction, strongly bitter to taste in the cobra, but almost tasteless in the daboia; its specific gravity is about 1010. It could easily be dried over sulphuric acid and then formed a yellow

granular solid. An ordinary cobra of 2000 grms. weight discharges at a time 250 mgrs. (nearly 4 grs.) of dried venom, which is sufficient to kill 5000 rats, the lethal dose for one being 0·05 mgr. For a horse 20 mgrs. is sufficient, and for a man probably 10 to 20.

As regards the chemistry, the poison is probably of the nature of an albumose, there are probably two proteids present. Heating affects the toxicity, and daboia poison loses its virulence if heated for 30 minutes at 75° C.

The physiological effects differ with the poisons. (1) Cobra. The injection of a lethal dose leads to a feeling of uneasiness, weakness, and then paralysis of all the limbs, finally of all the body, respiration alone going on. Death may be preceded by a convulsion. The venom has a marked hæmolytic effect, and lakes the blood; it clots with very great difficulty. In man the bitten part always swells, sloughs, and in recovery cicatrises. There is good evidence that the venom acts on the central nervous system. (2) In daboia there is no paralysis like this. (*a*) Death may occur rapidly if with a massive dose, the animal becoming unsteady and unable to balance, and at length tumbling. Violent convulsions follow, and shortly death ensues. The autopsy shows great intra-vascular clotting, the blood being practically solid. (*b*) Or death may not ensue for say six hours. The animal becomes faint, and falls in a syncope, to recover and faint again, till death comes from heart-failure. The post-mortem shows nothing. (*c*) Chronic daboia-intoxication may result, the site of injury showing great bloody extravasation. Death may result from tetanus or malignant œdema. (3) In poisoning by the krait (Bungarus), there is no local effect. A large dose may cause intra-vascular clotting. As a rule the animal goes off its food, loses weight, becomes paralysed and dies in perhaps six days.

Treatment.—Up to recent times the internal treatment was strychnine or alcohol; and the local, cautery or excision plus ligature. Dr Lamb then referred to the work of Calmette and Fraser on anti-venoms, and criticised Calmette's views. He maintained strongly the view of the specificity of the venoms, and that for each individual species of snake its own anti-venom must be employed. While this was a matter of great theoretical interest, it largely limited the practical utility of the antidote as frequently it was impossible to learn what snake had bitten and therefore what anti-venom should be used.

On the motion of Dr Alex. Robertson, seconded by the President, the Society very heartily thanked Dr Lamb for his interesting communication.

Dr W. K. Hunter gave an interesting microscopical de-

monstration showing the effect of snake-venom (cobra and krait) on the central nervous system of three monkeys. He first described the Nissl and Marchi method of staining cells and fibres, and the changes that occur in degeneration. After snake-bite, in all three cases, there was evidence of very acute diffuse degeneration of nerve-cells (motor in cortex, and ganglion in cord) and in many parts in the fibres, the cell showing the loss of the Nissl granules, and the fibres the presence of degenerated myelin. This description was illustrated by excellent sections.

Glasgow Southern Medical Society

THE third ordinary meeting was held on October 30, when the President (Dr Macgilvray) delivered the customary inaugural address. He devoted the evening to a survey of the history of medicine, dwelling specially on the life and work of its Father, Hippocrates, who, flourishing about the end of the fifth century B.C., lived and exerted his influence at a period when the intellectual glory of Greece was at its height. For contemporaries he had Sophocles and Euripides, Plato and Socrates, Pericles, Thucydides and Xenophon. A sketch was given of the genesis of the priest-physicians, and of the temples of healing or Aesclepians, such as that at Cos where Hippocrates lived and taught. There came many sick, for advice and for treatment, in the latter case often becoming inmates of the temple-hospital. The chief therapeutic means adopted were rest, abstinence from strong food, the use of thermal and medicinal baths, rubbing, and perhaps mesmerism. The President next gave a short account of the writings of the great teacher, quoted some of the famous aphorisms, and read the Hippocratic oath. Attention was directed to the influence of the teachings of the Arabian physicians during the tenth and eleventh centuries, and of the dissemination of their writings translated into Latin. For several centuries progress was quiet, though there was the establishment of some of the great European schools, such as those at Padua, Bologna, Paris and Montpelier. In 1518 the College of Physicians of London was created into a corporate body, a charter having been obtained through Wolsey. From this time on the intellectual torch of medicine burned with remarkable brilliancy, and among those who helped to feed the flame were Sylvius and Fabricius, Morgagni, Valsalva and Harvey, John Hunter and Jenner, Abernethy, Cowper, Cullen and Addison, so bringing us down to present-day life and work

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THE fourth ordinary meeting of the Society was held in the Royal Infirmary on November 13, when Dr John Macintyre

gave a demonstration of the electrical apparatus of the hospital, somewhat similar in scope to, though more fully illustrated than, that given to the Medico-Chirurgical Society in October, and described in the November issue of this Journal. After the demonstration the members had an opportunity of inspecting the new Electrical Pavilion.

Aberdeen Medico-Chirurgical Society

A MEETING of this Society was held on November 20th—Dr D. W. Finlay, the retiring President, in the chair.

The following office-bearers were elected for session 1902-1903:—President—Dr John Gordon; Vice-President—Professor Cash; Secretary—Dr J. Marnoch; Recording-Secretary—Dr A. W. Mackintosh; Treasurer—Dr Wm. Findlay; Librarian—Dr P. Howie; Members of Council—Drs D. W. Finlay, D. W. Geddie, G. Rose, G. Watt, A. Westland, G. Williamson.

Forfarshire Medical Association

THIS Society met in the University College, Dundee, on Thursday, November 6th, Dr A. J. Duncan in the chair.

Professor MacEwan showed a girl after treatment for neglected talipes equino-varus. The treatment adopted was that of removing the interior of the bones which maintained the parts in the deformed position, the treatment introduced by Prof. Ogston. Professor MacEwan showed by lantern slides the patient's condition before treatment, and pointed out the advantages of this operation in cases of inveterate club feet.

Dr Low showed a child who had developed a hæmatoma of the right orbit following delivery by forceps. He stated that at birth there was no bruising observed, but in five hours some swelling and discoloration were noticed in the eyelids.

The effusion continued for three days and forced the eyeball out of the orbit. Superficial sloughing of the cornea and perforation occurred. In three months the extravasation was completely absorbed and the eyeball had returned to its normal position, but the cornea was replaced by a dense cicatrix. The child was quite healthy. The mother was 44 years of age, multiparous, and had no other complicated labours.

Professor MacEwan showed on the screen photographs, before and after treatment, of a case, a female child, with congenital absence of the perinæum. The development had stopped at the formation of a septum between the rectum and

the vagina. He had endeavoured to form a perinæum by flaps from the buttocks with some success.

Professor MacEwan referred to the extreme rarity of such a case.

Professor Kynoch showed an œdematous fibroid tumour of the uterus successfully removed by abdominal myomectomy from a woman aged 30. The tumour had increased, in three months, from the size of an orange to that of a fœtal head, as the result of œdematous degeneration.

Mr Greig showed the right half of the lower jaw removed for myeloid sarcoma in August of this year from a woman, aged 31. In January 1901 a swelling appeared at the angle of the right lower jaw but disappeared after the extraction of two teeth. It recurred in January of this year. In May, when Mr Greig first saw the patient, the swelling was hard and tender to touch, and there were two slightly enlarged glands below it. The patient's tuberculous appearance and unsatisfactory family history seemed to favour the diagnosis of tuberculous osteitis, and under chloroform the diseased tissue was scraped and part removed for examination by Prof. Sutherland, who reported that the swelling was a myeloid sarcoma.

The specimen shown was removed in August and the patient made an excellent recovery, due partly, Mr Greig considered, to the use of antistreptococcic serum. In connection with this he stated that the free use of the serum produced effusion into the sheaths of the extensor tendons.

One thing noticeable in this case was the varying in size of the tumour, which Mr Greig referred to, and also the impossibility of having an interdental plate fixed in this and similar cases where half of the lower jaw is removed.

Dr G. Halley then gave notes of a case of excision of portion of the left half of the lower jaw in a girl aged 12, for myeloid sarcoma. The patient was first operated upon by Mr Greig in August 1899 for swelling in the left lower jaw of six weeks' duration at that time; after a portion of the tumour had been removed, examined, and found to be of the nature of myeloid sarcoma, part of the bone of the jaw was removed and the actual cautery applied.

A swelling which reappeared six months later, about the size of a pea, was excised deeply and a tooth extracted.

Six months later than this, in October 1900, a swelling reappeared at the angle of the left lower maxilla. The proximity of the tumour to the angle of jaw, the reappearance of the swelling despite previous treatment, the nature of the tumour, and necessary interference with muscles of the jaw if recurrence were to be prevented, decided Dr Halley, under whose care the

case had now come, in the absence of Mr Greig in Africa, to perform complete excision of the left lower maxilla posteriorly. The operation was performed on November 5, and the bone was sawn through at the side of the left canine tooth, thus allowing an inter-dental plate to be inserted later. The plate was inserted a week later, and the patient sent home three weeks after the operation. She retained the plate for about seven weeks, and was then able to masticate with the right side of her jaw. Dr Halley stated that he had lost sight of her and could not speak of her present condition.

Mr Greig who had seen her since Dr Halley had, said she was then quite well. He considered that the inter-dental plate succeeded in Dr Halley's case because he was able to leave so much of the anterior portion of the lower jaw.

Dr Foggie read notes of a case of neralgia paræsthetica which he had met with in a woman of 50. There were present over the antero-external region of the right thigh, the paræsthesiæ, the anæsthesia, and the recurring pains which together made up the cardinal features of the fully developed condition. Since its recognition seven years ago a considerable number of cases had been reported. The medical treatment had not been very satisfactory except in the milder cases, but since the adoption of resection of the offending nerve excellent results had been got.

Dr Mackie Whyte said he had seen a number of cases allied to Dr Foggie's but without the paroxysmal pains.

Editorial Notes and News

The Principalship of Edinburgh University.

No one can wonder that Sir William Muir, full of years and honour, has at last decided to lay aside his armour and enjoy a well-earned leisure. During his Principalship the University has advanced in many ways, though its students are not so numerous as when he took his seat in 1882.

It will not be easy to fill his place. Rumour is already busy, and we hear at least three professors spoken of, all of whom would be excellent candidates. We think, however, there is much to be said for the importation of a strong outsider, a man still in his full vigour, who would be biassed in favour of no one Faculty, would bring with him to the Chair no stereotyped ideas, but would weigh all the conflicting interests and strive solely for the general good. A broad-minded, strong Principal would

be as valuable an asset to the University as, in the words of Lord Rosebery, Lord Kitchener is to the Empire.

The Notification of Phthisis.

THE notification question has got rather involved. In February last the Public Health Committee of the Town Council proposed to make notification compulsory, but their proposal was rejected by the Town Council in favour of an amendment declaring for voluntary notification. At the special meeting of the Edinburgh Medico-Chirurgical Society, held for the purpose of discussing the proposal, the voluntary notification was practically defeated by the unanimous adoption of a motion in favour of compulsory notification.

We think it is a pity that the meeting did not give a definite lead to the profession as to the attitude to be adopted to Sir Henry Littlejohn's circular, which we understand has already been signed by over two hundred members of the profession in Edinburgh.

We print elsewhere a thumb nail sketch of the discussion by an occasional correspondent.

Jubilee of Sydney University.

SYDNEY UNIVERSITY has just been celebrating its jubilee, and a series of brilliant fêtes have taken place in connection therewith. The opportunity was taken to celebrate at the same time the majority of the Medical School, and an address was delivered on its History, by Professor Anderson Stewart, a Scottish graduate. Although in some respects a child of the Scottish Universities, for several of the professors are from this country, the child seems to have in some respects gone ahead of its parents. Professor Stewart gave an interesting account of the first beginnings of the Medical School in a three-roomed cottage, and he compared its progress to that of an American President, from "Log cabin to White House."

With the recent appointment of Professor Welsh the scientific part of the School was completed, and the final touches have been applied by the institution of several lectureships. We note with interest that Midwifery and Gynæcology are separated; that all the subjects which are treated of in lectureships in this country are so treated there, and that they have in addition a lectureship in Medical Ethics. Professor Stewart expressed his desire to see one more lectureship instituted, namely, on the History of Medicine. We have heard rumours that such a

lectureship had been contemplated in at least one Scottish University, and we do think that a lectureship combining the History of Medicine with Ethics would be a most useful one. There are some who consider ethics a subject which should never be referred to, but we are convinced that the majority of breaches of ethics are committed in ignorance, and it is quite notorious that graduates leave our Universities without any instruction whatever in their relations to each other, and very little in their relations to the public and the State.

Complimentary Dinner to Sir William Macewen.

ON October 31, Sir William Macewen was entertained to dinner in Glasgow by a large number of professional and other friends, as an indication of their appreciation of the honour lately done him by His Majesty. Mr Henry Clark, C.M.G., senior surgeon of the Glasgow Royal Infirmary, presided, and Professor Chiene, C.B., acted as croupier. The majority who sat down to dinner were members of the profession in Glasgow and the West of Scotland, but Edinburgh and other towns were adequately represented. Mr Clark proposed the toast of the evening—"Health, happiness and prosperity to Sir William Macewen"—in a very felicitous speech, referring especially to those qualities and that work which had made Sir William so great an ornament, alike to his university and his profession. Sir William Macewen, in replying, reverted to his old days at the Royal Infirmary, and called up many memories of his old colleagues, resident and assistant. He referred to the great army of those who, seeking no other reward than truth, were always working, silently and unobtrusively, to further the ends of scientific medicine. He said in concluding that the honour bestowed on him lately by the royal hand—an honour unthought of and uncoveted—had been greatly enhanced for him by the kindly endorsement of it which those present had given that evening. To the toast of the "Scottish Universities," proposed by Mr Maylard, replies and thanks were tendered by Principal Story and Professor Chiene, C.B., while the health of the chairman was suitably honoured after a fitting speech by Professor Glaister.

Faculty of Physicians and Surgeons of Glasgow.

THE annual meeting of the Faculty was held on November 3rd, when Dr Jas. Finlayson was unanimously elected President for a further term of office, and Mr Henry Clark, C.B., was chosen after a vote to fill the post of Visitor.

Proposed New Medical Society in Glasgow.

IT is proposed to found a new Society, under the name of the Glasgow Northern Medical Society, for the benefit of those members of the profession residing in the districts of Maryhill, Possilpark, Springburn, and North Kelvinside, and a preliminary meeting has been held of those likely to be interested.

American Gynecology.

A JOURNAL which numbers among its editors and collaborators such men as Charles Jewett, Charles P. Noble, J. Whitridge Williams, John M. Baldy, Barton Cooke Hirst, Howard A. Kelly, Matthew D. Mann, Hunter Robb, and J. Clarence Webster, can scarcely fail to receive a warm welcome from the obstetrical world. *American Gynecology* is in this happy position, and it will be its own fault if it does not retain the support it has already gained. To do so it will only be necessary for the members of its editorial board and for its collaborators (sixty-seven in number!) to contribute articles to its pages. A rapid survey of the first three monthly parts encourages us in the belief that this is to be so. It is evident from the table of contents that we must regard "Gynecology" in the wide sense which includes also obstetric matters. This usage, although it is not as yet common on this side of the Atlantic, is etymologically correct enough, for that monument of modern research and scholarship—"Murray's New English Dictionary"—defines Gynæcology as "that department of medical science which treats of the functions and diseases peculiar to women"; but it must be admitted that many writers follow the definition of gynæcology given by the "New Sydenham Society Retrospect" as "embracing the Physiology and Pathology of the *non-pregnant* state." However this may be, we tender a hearty welcome to *American Gynecology*, and wish it long life and a long list of subscribers. The readers of the *Scottish Medical and Surgical Journal* will be specially interested to note that this new American venture is financed by the American Gynecology Publishing Company, which numbers among its directors Drs Jewett, Wesley Bovée, Robert L. Dickinson, and J. Whitbridge Williams. "Imitation is the sincerest of flattery," was one of Colton's "edifying and forcibly expressed" aphorisms; perhaps it may be opportunely quoted here.

The Women Students' Medical Magazine.

WE have just received No. 2 of this Magazine, edited by Miss Giffen, F.R.C.S.I., and Miss Coghill, M.B. It is a marked improvement on the first number, and in addition to some

interesting case records, contains racy students' accounts of the teaching of Midwifery in the different schools of Great Britain and Ireland.

The Use of Alcohol in Medicine.

TWO journals, the *Practitioner* and the *Boston Medical and Surgical Journal*, have each devoted a recent number to the special consideration, by men of eminence in various branches of the medical profession, of alcohol in its medical and scientific aspects. The papers by these authorities, together with the published report of the discussion upon the same subject at the Edinburgh Medico-Chirurgical Society last year, will be found to embody a considerable volume of medical opinion, English, American, and Scottish, as to the place and value of alcohol in health and disease. When all these are compared together, perhaps the only generalisation which can be safely ventured upon is that medical opinion is still in process of evolution, and that at present the alcohol question is one of the many upon which doctors differ. The trend of this evolution would appear to be in the direction of a limitation of the recognised indications for the therapeutic administration of alcohol and a diminution in the dosage. If this is so, the special alcohol number of the *Practitioner* may fairly claim to be representative of "advanced" views. The tendency to restrict the use of alcohol is so marked a feature of the nine papers it publishes, taken as a whole, that the issue might have been better described as a special "temperance" number, were it not for the opening remarks of the editor, who indicates and illustrates by quotations from distinguished authorities, that there is another side to some of the opinions expressed.

The action of alcohol as a stimulant naturally receives a good deal of attention from different writers, and it may be worth while quoting Sir W. H. Broadbent's hope "that the idea, so firmly fixed in the mind of the public, that stimulants give strength, is no longer entertained by any member of the medical profession." But is alcohol a stimulant? Does it, for example, excite the cerebral cortex as strychnine excites the spinal cord? Another theory is certainly tenable, and the view suggested by Schmiedeberg that alcohol acts as a narcotic, and that the stimulation of the brain is only apparent, seems to be supported by the experimental evidence of the effect of alcohol upon mental processes, which has been gathered in psychological laboratories, especially by Kraepelin and his pupils. These views are carefully examined by Professor Cushny (*Boston Medical and Surgical Journal*) in his paper on "The Basis for the use of Alcohol in Therapeutics."

The use of alcohol in various forms of infectious disease is discussed by several writers. Sir W. H. Broadbent illustrates the injurious effects which may result from the injudicious use of alcohol, and advises that the use of stimulants in acute disease should be delayed as long as possible, the chief indication for their administration being furnished by the pulse. Mr Pearse Gould discusses the experimental evidence as to the influence of alcohol on the susceptibility of animals to infection, and concludes that experience with patients exactly coincides with the results obtained in experiments upon animals. "Of all the bad uses," he says, "to which alcohol is often put as a therapeutic agent, none is worse than its employment in any form of infective disease." The same evidence is discussed by Dr Meltzer (*Boston Medical and Surgical Journal*), who reaches a much less extreme conclusion. As he points out, in most of the experiments a very large quantity of alcohol was administered, and administered moreover in one or two doses instead of being distributed over six or twelve, as would have been the case in the human subject.

After all, the use of alcohol as a therapeutic agent must be based upon its effects upon patients, and not upon experiments on animals. What the clinician has to learn from the experimentalist is the value of definite observations, and the necessity of basing his opinions upon verifiable facts, and not upon general impressions and prejudices.

The Alcohol Question in France.

THE French parliament has appointed a Special Commission to investigate from every point of view the whole subject of the use and abuse of alcohol in France. A writer in *La Presse Medicale* (Nov. 12, 1902) takes a rather pessimistic view of the present position of the country in this respect. The question, he says, is really one of life or death. The use of alcohol, and especially of the stronger spirituous liquors, has increased enormously in recent years. The result of this has been the appearance of signs of degeneration, which it is high time to check. The death-rate also remains very high, especially in the large centres, although it is diminishing to a remarkable extent in England and Germany. Crime, and especially juvenile crime, is assuming disquieting proportions, while insanity likewise is increasing greatly.

In France, as in England, the tax on alcohol forms one of the principal sources of revenue, and the financial questions involved are expected to receive a good deal of attention, especially as the Commission emanates from the Minister of

Finance. But it is to be hoped that the opportunity afforded by the appointment of a widely representative Commission will be taken advantage of to study the question of alcoholism in France in all its aspects, and to reach if possible some definite conclusions as to the means which should be adopted for combating the evil.

"Union internationale de droit pénal."

THE more advanced doctrines of the Italian school of criminology do not appear to have been much in favour at the ninth congress of the "Union internationale de droit pénal" which met recently at St Petersburg. Judging from a report of its proceedings in the current number of the *Revue Scientifique* (November 8), the science of craniometry has not yet reached such a state of perfection as to be able to indicate the exact amount of punishment which should be inflicted upon a criminal; nor is the anthropologist, for the present at any rate, to take the place of judge and jury. Indeed the congress seems to have confined itself only too strictly within the bounds of orthodox jurisprudence, and to have devoted itself mainly to the discussion of such subjects as transportation, summary procedure, conditional sentences, and so on.

M. Forse, ex-professor at Zurich, seemed to have little faith in the efficacy and the equity of our existing judicial system, and advocated a rather wholesale asylum treatment for the depraved, the incorrigible, and the dangerous.

M. Liszt of Berlin read a paper upon the sociological aspects of crime, in which he separated himself frankly from one of his learned colleagues who spoke only of educational means. While he believed strongly in educating, in elevating, in reforming, he believed also that there would always be a residue for whom punishment would be necessary.

M. Mouraview, the Russian Minister of Justice, was elected honorary president for the next meeting of the Union.

Appointments.

TWO Scottish graduates have recently been appointed to prominent posts. Dr Andrew Balfour, who is as distinguished as an international footballer and a novelist as he is in medical science, has been appointed Director of the Burroughs Laboratory in Khartoum, where his duties are surely sufficiently comprehensive. He is to do the Bacteriology of the Province, to investigate the (many) cases of criminal poisoning which occur in the Sudan, and lastly to devote his attention to the study of the cereals, textile fibres,

and various matters affecting the development of the agricultural and mineral resources of the country.

While Dr Balfour's professional capacity more than justifies his selection, one almost feels that his stalwart physique must have been an additional argument in his favour with the Sirdar.

Dr Bashford, Sir Thomas Fraser's second assistant, has been appointed Director of the Cancer Research Scheme. Dr Bashford had a brilliant undergraduate career, and is to be congratulated on so early obtaining so important a post. We are informed that several more widely-known candidates were passed over, on the ground that they held definite views on the subject; and it was thought desirable that one whose duty it was to collect and assort all available information on the subject should approach it with a fresh and unbiassed mind, and that he should not immediately commence to write his own theory on the "slate," which Sir Thomas Fraser at the Edinburgh Medical Chirurgical Society referred to as having been so thoroughly "cleaned" by Dr Aitchison Robertson.

THE triumphant acquittal of Dr Craig, of Cowdenbeath, who was recently sued for damages for alleged negligence, is probably known to most of our readers. Such cases are fortunately uncommon in Scotland, and Lord Kingsburgh's pungent remarks are not likely to increase their number.

On November 6th, Dr Craig was entertained to dinner by the Fifeshire Medical Association and the Fife Colliery Surgeons Association, and presented with a handsome silver rose bowl. The dinner was well attended, and there was a long list of apologies from those whose other engagements prevented them from being present.

Dr Craig is to be congratulated on his success in the action, on this recognition by his professional neighbours, and perhaps most of all on the forethought which led him to join the Medical Defence Union; all of whose resources and great experience in such matters was freely placed at his disposal.

Yellow Fever. ONE of the most striking evidences of the benefit of sanitation is the official announcement that, for the first time for a hundred and forty years, no case of yellow fever has originated in Havanna.

Plague. THE *Medical Record* indicates its regret that the sanitary administration of San Francisco is not equally efficient. Eighty-one deaths from plague have occurred there—including ten cases in September.

Medical Education in Paris.

WE have just received the Students' No. of *Le Progrès Médical*, which contains an enormous amount of information on medical education in France and its colonies, and is well worthy of perusal by those interested in medical education in this country.

At the present time, when there is so much discussion of the curriculum, it may be of interest to give the plan of study laid down in Paris, since it differs so markedly from ours. It was adopted by a decree on the 31st of July 1893.

First year—Anatomy, histology, physiology, biological chemistry, biological physics, elementary general pathology, dissections.

Second year—Anatomy, histology, physiology, external pathology, internal pathology, medical and surgical cliniques, hospital work and dissections.

Third year—Pathology: external, internal, experimental and comparative. Practical obstetrics, pathological anatomy. Medical natural history (parasitology). Practical work: hospital, pathological anatomy, parasitology (animal and vegetable parasites).

Fourth year—Therapeutics, hygiene, legal medicine, pharmacology, materia medica, medical and surgical cliniques. Chemistry and physics as applied to hygiene and therapeutics, history of medicine and surgery. Hospital work in the obstetrical and special departments. Practical work, materia medica, bacteriology, etc.

Fifth year—Practical work, materia medica (botanical, chemical, pharmaceutical), bacteriology, etc., etc.

Politics and Practice.

WE have heard of, though we never experienced, the effect of politics on practice in this country. The extract quoted below is from an address by the President of the Royal College of Surgeons of Ireland (*Medical Press*, November 12, 1902), and is the narrative of a recent occurrence in the West of Ireland. We agree with Mr Ormsby that it is time to brand such an action as a public scandal.

"Dr C. reported having engaged Dr C. to act for him during the time he would be away on his holiday. Guardian No. 1.—'This doctor is after coming from South Africa, and we will not have him.' Guardian No. 2.—'No matter who we have, we will not have one of Chamberlain's hirelings.' Guardian No. 1.—'I propose that one of our own medical officers be employed.' Guardian No. 3, in supporting the resolution, said that 'Dr C. went to South Africa to slay liberty-loving people, and now he

had come to live among them, but they would not have his services.' Guardian No. 4.—'It would be very hard on the people of B. to have to go to C. for a doctor.' Guardian No. 5. —'We would rather go to C. than have the South African doctor.' The proposed resolution was then carried."

Royal College of Physicians of Edinburgh

AT the Quarterly Meeting of the Royal College of Physicians held on November 4th, Mr William Blackley Drummond, M.B., C.M. Edin., and Mr John Eason, M.B., C.M. Edin., were introduced, and took their seats as Fellows of the College.

The following were admitted Members:—Andrew Balfour, M.D. Edin.; Edwin Matthew, M.B., C.M. Edin.; John Dixon Comrie, M.B., Ch.B. Edin.; David Barty King, M.B., Ch.B. Edin.; James Miller, M.B., Ch.B. Edin.; Thomas Grainger Stewart, M.B., Ch.B. Edin.

Royal College of Surgeons of Edinburgh

AT a meeting of the College held on 15th October last, the following gentlemen, having passed the requisite examinations, were admitted Fellows of the College:—William Sloss, M.B., Victoria; James Simpson Clayton, M.D., Accrington; John Adamson Honey Duncan, M.D., Edinburgh; Alexander Henry Edwards, Motherwell; David Gault, M.D., New Zealand; Robert George Henderson, M.B., Haydock; William Edward Herbert, M.B., Edinburgh; Harold Crossley Hildreth, L.R.C.S.E., Portobello; Henry Cairns Lloyd, M.B., Melbourne; William Chisholm Macdonald, M.B., Kimberley; Alexander Morrison M'Intosh, M.B., Edinburgh; Arthur Augustus Pim, L.R.C.S.E., Beaminster, Dorset; Robert George Riddell, M.B., Rotherham; Neil Robson, M.B., London, W.; and John Stuart Ross, M.B., Manchester.

The Bathgate Prize, consisting of Medal and Medical Books, founded by Colonel William Lorimer Bathgate, in memory of his late father, William M'Phune Bathgate, F.R.C.S.E., Lecturer on Materia Medica in the Extra-Academical School, for competition amongst students attending the Extra-Mural Classes in Materia Medica, was awarded for the Summer Session to Mr John Macmillan Campbell, No. 16 Scotland Street, Edinburgh.

Royal College of Physicians of Edinburgh, Royal College of Surgeons of Edinburgh, and Faculty of Physicians and Surgeons of Glasgow

THE Quarterly Examinations of the above Board, held in Edinburgh, were concluded on 30th inst., with the following results:—

First Examination, Four Years' Course.—Frederick Francis Middleweek, London, passed the examination.

First Examination, Five Years' Course.—Of 21 candidates entered the following 9 passed the examination:—Archibald Randolph Fulton Douglas, Greenock; John Peter Carroll, Cork; William Martin Ferguson, Glasgow; Henry James Gorrie, Dundee; John Hugh Simpson, New Zealand; Thomas Boston Johnstone, Edinburgh; William Church Mann, County Derry; William Alexander Huston, County Antrim; and Louis Nathaniel Robertson, Trinidad; and 2 passed in Elementary Biology, and 4 in Chemistry.

Second Examination, Four Years' Course.—Of 7 candidates entered the following 5 passed the examination:—William Henry Curtis, England; William Hall, Edinburgh; Randal Herley, County Cork; A. M. S. Kelso, Scotland; and William James Coppinger, Midleton.

Second Examination, Five Years' Course.—Of 25 candidates entered the following 10 passed the examination:—John William Pell, London; James Bailie, Dalkeith; Archibald Cameron Ney, Bellingham; Henley John Byrne, Londonderry; James Taylor, Auchterarder (with distinction); Claude Knight-Kennedy, Melbourne; William John Cogan, Cork; James Murphy, Midleton; Reginalds Reynalds, Bristol; and John Lawrence Power, Cork; and 1 passed in Anatomy and 1 in Physiology.

Third Examination, Five Years' Course.—Of 28 candidates entered the following 15 passed the examination:—Evelyn Neville Lea Wilson, Sandgate; George Harrison, England; William Adams, County Antrim; John Arthur Denzil Rome, Torquay; David Arnold Hastings, County Derry; Evelyn Morris Franklin, Cork; Percy James Thomson, L.D.S., Glasgow; Dowlatram Gopaldas Advani, Hyderabad; Vincent Paul Pereira, Bombay; Stephen M'Carthy, County Cork; David Haig, Falkirk; William Millar Ramsay, Fauldhouse; Emile Reboul, France; Dora Mann, Eisenberg; and Margaret Lucy Tyler, London; and 3 passed in Materia Medica.

Final Examination.—Of 80 candidates entered the following 33 passed the examination, and were admitted L.R.C.P.E., L.R.C.S.E., and L.F.P. and S.G.:—Ernest Joseph Addison, Tasmania; Milson Russen Rhodes, Bradford; Anne Lowe

Venters, Greenock; Lilian Gertrude Simpson, Bombay; Benjamin Isaac, S. Wales; Mary Edith Martin, Sevenoaks; Katharine Charis Davies, Llanerchymedd; William Eugene Struthers, Canada; Hans Martinus Peries, Ceylon; Ethelbert Hearn, Kent; Andrew Paterson Walker, Glasgow; Trueman Edward Bishop, Canada; George Henry Wilkinson, Dudley; Timothy Foley, County Cork; Christopher Marley Cass, Durham; Charles Wilfred Coghlan, Longton; Elizabeth Mary Cardozs, India; Frederick Arnold Ritchie, Jamaica; Isa Charan, Lahore; Nalini Nath Dey, Krishnagar; Joseph Albertus Exton, Cape Town; Francis Audubon Gray, Ireland; Robert Sutherland Mackintosh, Sutherlandshire; Ryder Percival Nash, Cork; Kaikhushru Jehangir Bhamgara, Bombay; Robert Gibson, County Tyrone; Kottarathil Matthan Matthan, Madras; Andrew Smyth, County Derry; John Coulter Warwick, County Antrim; James Macarthur, County Down; David Ahern, County Cork; Lionel George Wickham, Maidstone; and Norman Pigott Fairfax, Handsworth; and 4 passed in Medicine and Therapeutics, 1 in Surgery and Surgical Anatomy, 12 in Midwifery, and 9 in Medical Jurisprudence.

The following gentlemen, having passed the requisite examinations, received the Diploma in Public Health of the above Board:—Thomas Lauder Thomson, Middlesex; George Archibald Park Ross, Dingwall; Harry Moss Traquair, Edinburgh; Charles William Somerville, Dalkeith; Richard Hamilton, Coatbridge; William John Barclay, New Zealand; Robert Paterson Heddle, Kirkwall; Robert Brown Turnbull, Ross-shire; and David Durran, Thurso.

Recent Literature

CRITICAL SUMMARIES AND ABSTRACTS

MEDICINE

NEUROLOGY

By A. W. MACKINTOSH, M.A., M.D.,
Assistant Physician to the Aberdeen Royal Infirmary

The Knee-jerks in Tabes.—Loss of the knee-jerk is generally recognised as one of the most constant signs of tabes, even in its earliest stages. Gowers, in his text-book, says: "It is exceedingly rare for the knee-jerk to be obtained in any case of true tabes, but an early case is sometimes met with in which it is not lost, although diminished, and commonly unequal on the two

sides." Various authors have collected and tabulated a large series of cases of tabes, and have found that about 90 per cent. of each series show absence of knee-jerk. Thus, Byrom Bramwell, in a valuable analysis of 155 cases of tabes (*Brain*, 1902, p. 19), found absence of knee-jerk in 127 out of 147 cases (86·3 per cent.) when they first came under his observation but ultimately this sign was present in 132 cases (89·7 per cent.). The diagnosis of cases of tabes with active or exaggerated tendon reflexes is generally regarded with grave suspicion, but the belief seems to be gaining ground that this condition of the reflexes is not so infrequent in the early, preataxic stage of tabes. Erb (*Münch. med. Wochenschr.*, vol. 47, 1900, p. 989) records five cases with active tendon reflexes, which he believes to be cases of true tabes. Bramwell (*loc. cit.*) found the knee-jerks exaggerated on one or both sides in five cases, and very active in other two. Wilfred Harris (*The Practitioner*, Oct. 1902, p. 395), in an interesting paper on "The early manifestations of tabes," based on forty-six personal observations, states that one special reason for his paper is to emphasise "the frequency with which an increase of the deep reflexes may be met with in the early stages of the disease, in cases in which general paralysis can certainly be excluded." Analysis of his forty-six cases yields the striking result that the knee-jerks were either brisk or increased on both sides in twenty-two (nearly 48 per cent.), while both knee-jerks were absent in only nineteen cases (41 per cent.). He believes that many cases of early tabes are undoubtedly wrongly diagnosed as incipient general paralysis, on account of exaggeration of the deep reflexes. Such cases and analyses as those given above are well worthy of careful consideration; but it should be stated that, so far as we know, the diagnosis in all cases rested entirely on clinical grounds.

Absence of the Tendo-Achillis Jerk.—A considerable amount of attention has been given within the last year or two to the condition of this jerk, and a diagnostic value has been claimed for its absence in various diseases, more especially in tabes and sciatica. A valuable contribution to this subject is made by Edwin Bramwell (*Brain*, 1901, p. 554), based on the examination of 1009 persons, in health and disease. One of his conclusions is that the Achillis-jerk is (probably) constantly present in health in persons under fifty years of age; but that in persons over fifty years of age, the activity of the jerk diminishes with increasing age, so that its absence in old people ceases to have the same diagnostic significance that it has at an earlier age. In the great majority of cases of tabes, both the

knee-jerks and the Achillis-jerks are found to be lost; but in some cases of early tabes the absence of the Achillis-jerks has been noted while the knee-jerks are still present—in these cases the absence of the Achillis-jerks will be an important diagnostic sign. Babinski (*Rev. Neurolog.*, 1901, p. 483) has come to the conclusion that the Achillis-jerk is usually lost before the knee-jerk in tabes, and the same conclusion is arrived at by Seyer (*Thèse de Paris*, 1902). The condition of the Achillis-jerk should therefore be investigated in all suspected cases of tabes, especially where the knee-jerks are present. Edwin Bramwell (*loc. cit.*) found that, among thirty cases of tabes, four showed no diminution of knee-jerk, and in two of these the absence or constant diminution of the Achillis-jerk afforded diagnostic data. Wilfred Harris (*loc. cit.*) found that, among six cases in which the knee-jerk and Achillis-jerk were affected in a different way, four showed absence of the Achillis-jerk, while the knee-jerk was present on one or both sides. In Byrom Bramwell's series of cases, the condition of these two jerks was the same in forty-eight out of fifty-two cases; in the remaining four, the knee-jerks and Achillis-jerks were not affected in the same way, but there is no strong confirmation of the view that the absence of the Achillis-jerk generally precedes the loss of knee-jerk.

In sciatica, it has been shown by Babinski and more recently by Biro (*Deutsche Zeitschr. f. Nervenheilk.*, 1901, Bd. 19, s. 188) and Seyer (*loc. cit.*) that the Achillis-jerk is diminished or, usually, lost on the affected side, but never on the sound side. The loss of the Achillis-jerk is regarded as a proof that sciatica is not a simple neuralgia but a neuritis with distinct anatomical change in the nerve, and the presence of this sign is believed to be of value in the diagnosis between true sciatica, and the hysterical form of the disease. Biro found in several cases of sciatica that the Achillis reflex was diminished at the beginning of the trouble, disappeared at a later stage of the disease, gradually returned during convalescence, and was entirely restored after complete cure—in one case, however, years elapsed before the jerk became normal.

Edwin Bramwell finds that the best method of testing the Achillis-jerk is that advocated by Babinski. The patient kneels on a chair with his feet projecting a few inches over the edge. In this position there is usually complete relaxation of the muscles of the leg—a very necessary and important point. The tendon is struck sharply with a hammer of some kind close to its insertion into the os calcis, and the jerk is shown by a quick plantar-flexion movement of the foot at the ankle joint. The various methods of reinforcement should be adopted where the jerk is not obtained. Where the kneeling position cannot be

employed, the patient may be examined prone: the patient turns over slightly towards the side of the limb to be examined, the limb is flexed at the knee almost to a right angle, and is then laid on its outer side upon the bed; the foot is dorsiflexed sufficiently to put the tendo Achillis slightly on the stretch, and the inner edge of the tendon is then struck with the hammer. This method of examination is found to be much more difficult, but gives almost equally reliable results.

The Tendon Reflexes of the Upper Extremity.—Frenkel (*Deutsche Zeitschr. f. Nervenheilk.*, 1900, p. 277) believes that the loss of these reflexes is a more constant and earlier sign of tabes than loss of the knee-jerk. Wilfred Harris (*loc. cit.*) found that, among ten cases specially examined in this respect, four showed absence of the triceps reflex while the knee-jerks were present or increased on one or both sides. On the other hand, Byrom Bramwell (*loc. cit.*) records that the arm-jerks were absent in only twenty-three out of forty-five cases (*i.e.* 50·9 per cent); while the knee-jerks were, as we have seen, lost in a much larger percentage. These reflexes, also, are so variable and often so difficult to elicit in health, that it is doubtful whether much stress can be laid on their absence in disease. Mohr (*Deutsche Zeitschr. f. Nervenheilk.*, 1901, Bd. xix. Hft. 2 and 4) has studied this subject, and he concludes that these jerks are so inconstant—the triceps-jerk being absent in 33 per cent. of healthy persons—that their absence is not directly applicable in the diagnosis of nervous diseases; and he finds that, in tabes, they are absent in about the same proportion of cases as in health.

Sensory Disturbances in Early Cases of Tabes.—It is well known that pains and paræsthesiæ of the most various kinds are often very prominent in the earliest stages of tabes. Thus, shooting pains were the first symptoms in 52·9 per cent. of Byrom Bramwell's series of 151 cases; in 45·6 per cent. of Wilfred Harris' 46 cases; in 67 per cent. of 400 cases collected by Leimbach in 1895. Recently, attention has been drawn to the great frequency, even in the earliest stages of tabes, of a zone of analgesia on the thorax—"thoracic analgesia"—usually extending from the second rib to near the umbilicus, and more especially about the level of the fourth intercostal space, with or without a strip of analgesia along the inner side of the arm and forearm. In a large number of cases of tabes, this band of thoracic analgesia has been found to be an extremely early symptom, present while the knee-jerks may still be active and

the pupils still react to light. Frenkel states that tactile sensation is usually affected first in these zones, and that it is important to employ a very light touch in testing.

The Treatment of Tabes.—The question of the value of antisyphilitic treatment in tabes has been much discussed of late. Very few writers now adopt the extreme view of Möbins and others that syphilis precedes *all* cases of tabes. Byrom Bramwell records that in 27·7 per cent., or 43 of his cases, syphilis was denied, and he is convinced that in many of these cases the patients had not suffered from that disease. He believes that syphilis is the most important cause of tabes, but that it is not the only cause; and he thinks that it acts mostly as a predisposing cause, by rendering the nervous system more vulnerable to the conditions of cord strain or irritation (*e.g.* sexual excess, irritation from toxins, alcoholic excess, exposure to cold and wet, trauma, etc.), which should perhaps be regarded as the exciting or immediate cause of the disease. The special indication for the employment of antisyphilitic treatment in tabes is where there is an undoubted specific history, and where the tabetic symptoms have appeared within a comparatively short time (a few years, at most) of the specific infection; in advanced cases of tabes, whether of specific origin or not, it is the universal experience that antisyphilitic treatment is of little, if any use. In a discussion on the treatment of locomotor ataxia in the Philadelphia Neurological Society (*Journal of Nervous and Mental Diseases*, May 1902, p. 291), the chief points laid stress on for alleviation of the pains were rest and massage; a bandage round the painful limb was also advocated, and good results were reported from the use of various drugs such as hydrobromate of hyoscine, salophen and aluminium chloride. Motschutkowski has again strongly advocated his method of suspension: he has employed it in nearly 1000 cases, and has obtained improvement in more than 20 per cent., and has never seen any unpleasant results. Konindjy (*Arch. de Neurolog.*, January and February 1902) records a similar experience, and he is strongly of opinion that this method of treatment has been too readily forgotten: he prefers Jacob's plan of an inclined plane, beginning with an angle of 30° and gradually increasing it up to 60°. On the analogy of the use of methylene blue in neuralgia (Ehrlich), Negro in 1901 tried santonin in the lightning pains of tabes and he recorded encouraging results: of eleven cases of tabes treated, in eight the pains were stopped, in two there was marked, but not permanent benefit, and only one showed no improvement. More recently Combemale and de Chabert

(*L'Echo Médical*, 29th June 1902, p. 301) have used santonin in sixteen cases: nine cases of tabes and seven cases of simple neuralgias. In the latter no real benefit resulted, but in five cases of tabes relief was obtained in a very clear and indubitable degree. Negro's method of administration—also approved by the later writers named—is to give a large dose (15 centigrammes in three pills of 5 c.g. each with an hour between each dose; or 10 c.g. at one dose, and 5 c.g. three hours later) in one day and not to repeat it oftener than four or five times in two or three months. He finds that notable remission of the pain occurs very rapidly, sometimes within an hour, and that the pains do not reappear for ten or fifteen days. Bearing in mind the risk of poisoning or accumulation, one should stop the drug as soon as the first sign of xanthopsia appears.

Fulton (*Journal of Nervous and Mental Diseases*, April 1902, p. 216) noted that in forty-six out of fifty-four cases of tabes (85 per cent.), gastro-intestinal disturbances preceded the onset of tabetic symptoms; and, deducing from this observation that the alimentary tract is probably the source of the toxins which cause tabes, he lays stress on treatment of the gastro-intestinal disturbances as one of the first indications for treatment in tabes.

In trying to arrive at a conclusion as to the value of any particular line of treatment in tabes, it is important to remember that tabes so frequently tends to stop spontaneously at almost any and every stage that it is extremely difficult, or even impossible to appreciate therapeutic results aright, but an ever-increasing bulk of evidence goes to show the value of Frenkel's method of treatment by means of exercises. An interesting report of the method as carried out by Frenkel himself and of results obtained by him is given by Frank (*Prag. med. Wochenschr.*, 1902, Bd. 27, Nr. 2 to 7). The avoidance of fatigue and the necessity for careful watching of the pulse during the exercises are strongly emphasised, and all the exercises must be carried out under the eye of a physician. Frenkel does not approve of any complicated apparatus, such as has been advocated by Leyden-Goldscheider and Jacob.

It is a well-known fact that regeneration of peripheral nerves takes place. There are two views as to the manner of the regeneration. The first and most generally accepted view is that the new nerve-fibres grow down from the central end of the divided nerve into the peripheral segment; according to the other view, which has within recent years been ably advocated in this country by Kennedy, Ballance, Purves Stewart, Fleming,

etc., the new nerve fibres are formed in the peripheral segment itself from the nuclei of the neurilemma (sheath of Schwann). Advocates of the latter view have suggested that the reason why regeneration of nerve-fibres in the central nervous system does not occur is because these nerve-fibres have no sheath of Schwann. But is there no evidence of such regeneration in the spinal cord? Gowers ("Diseases of the Nervous System," Ed. 3, vol. i. p. 356) states that it has been proved to occur in the lower animals. Sherrington found on one occasion, after removal of the posterior ganglia, apparently new-formed fibres in the spinal part of the tract at a remote date after the operation. There has hitherto been no clear proof of the occurrence of this process in the spinal cord of man. Gowers, however, cites a case of crush of the cord, in which sections of the cord suggested strongly an actual process of renewal of fibres which had been destroyed by inflammation, and he thinks that it is difficult to conceive any other explanation of certain clinical facts, such as some return of power after absolute motor palsy of twelve months' duration. *Proof* of the possibility of this regeneration of spinal nerve-fibres in man would seem to be afforded by a remarkable **Case of Severed Spinal Cord in which Myelorrhaphy was followed by Partial Return of Function** (F. T. Stewart and R. H. Harte—*Philadelphia Medical Journal*, June 7, 1902). The case is that of a woman, twenty-six years of age, who was shot with a revolver, one ball entering the spinal canal at the level of the seventh dorsal spine. There was immediate and absolute loss of motion and sensation in the legs and lower part of the trunk, with abolition of reflexes, superficial and deep. Operation was performed three hours after the accident; the spinal cord was exposed at the level of the seventh and eighth dorsal vertebræ, and was seen to be divided, the ends lying three-quarters of an inch apart. The ends of the cord were approximated by three catgut sutures, passed through the entire thickness of the cord, but the ends of the dura mater could not be brought together. Sixteen months after the accident, the patient could voluntarily flex the toes, flex and extend the legs and thighs and rotate the thighs; sensation of all forms was present, there was perfect control over the bowels except when diarrhœa was present, and there were no reactions of degeneration and no trophic changes in the skin or nails.

SURGERY

SURGERY OF THE LIVER AND GALL-BLADDER

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THE attention of surgeons and pathologists has of late continued to be directed in no small degree to the operative treatment of diseases of these organs. Experimental investigations, always an important adjunct, although performed on animals, continues to occupy the attention of pathologists and bacteriologists.

In the German Congress for Surgery held in Berlin during the spring of the present year, several interesting contributions were given by various surgeons on this branch of surgery.

In reviewing the literature of the subject during the past year, the diseases which seem to have attracted most interest are the treatment of liver cirrhosis by "epiplopexy" or "omento-fixation," the treatment of hydatid cysts of the liver by emptying and immediate closure of the sack, and the general treatment of cholelithiasis.

Within the last few weeks Kehr has contributed the under-noted results of his valuable experience in the treatment of gall-stones, an experience which is probably unequalled in this particular branch of surgery.

Two articles have appeared in surgical journals which may be of some interest to surgeons, to whom experimental investigation on animals must frequently be of practical importance.

RADSIEWSKY, *Mittheilung. aus den Grenz-gebieten d. Med. und Chir.*, Aug. 1902.

This investigator discusses the question as to the advisability of forming anastomoses between the gall-bladder and intestine on account of the danger of a spread of infection from the bowel upwards.

He collected fifty-six cases, in which the gall-bladder was either joined to the colon or small intestine, including the duodenum, and in not one single case was a definite cholangitis purulenta to be found *post-mortem*.

He performed a number of such operations on dogs, in which he found no evidence of infection of the biliary passages on killing the animals.

The only pathological change to be found was a general dilatation of the biliary passages throughout the liver.

As the result of his investigations, he concludes that there is no danger of spread of infection upwards from the intestine.

TANSENI (*Centralblatt für Chirurgie*, No. 30) describes the following operation, in which he diverted the portal blood into the inferior vena cava by directly uniting the two veins.

The portal vein is laid free and isolated, and also a small portion of the inferior vena cava. In order to arrest the blood flow temporarily, he clamps both veins with forceps previously covered with india-rubber. He then ligatures the portal vein at the hilus of the liver and divides it. He cuts a spindle-shaped piece out of the wall of the inferior vena cava, and lays the portal vein in the opening, and unites the margins of the walls of the two vessels together by means of continuous silk sutures. On removal of the forceps, the passage of the blood from the portal vein into the inferior vena cava is easily seen.

EHRHARDT.—In the German Congress for Surgery held in Berlin in April 1902, Ehrhardt read a paper, "Ueber die Folgen von Unterbindung grosser Lebergefässe."

As the result of his experiments, he found that ligature of large branches of the portal vein led to a gradual disturbance of the parenchyma, consisting of atrophy, and where many vessels were so ligatured, caused abdominal ascites. Hyperplasia of the rest of the liver and formation of collateral circulation, however, removed the ascites, so that the disturbance remained only a temporary one. Ligature of the trunk of the portal vein always caused death after some hours. Ligature of the hepatic artery, or of fairly large branches, caused a rapid necrosis of the whole liver, resulting usually in death.

KRAMM, "Ueber die Leber-entzündung nach Ruhr."

In the *Deutsche Zeitschrift für Chirurgie*, August 1902, under the above title, appears an interesting and detailed article on post-dysenteric inflammation of the liver, by Dr Kramm, army surgeon at Tientsin.

The chief points to which he draws attention, as the result of observations on the troops during the Chinese campaign, are that in most cases after dysentery there is congestion of the liver, with considerable enlargement of the organ, and that many of these cases go on to abscess formation. In acute cases these abscesses are generally multiple, the walls of which are brittle and soft. When these abscesses are opened, a connective tissue capsule forms, which gradually shrinks and occludes the cavity. The chronic abscesses have from the beginning a well-marked capsule.

Although the abscesses are multiple, there is generally one or more large abscesses resulting from the fusion of smaller abscesses.

As regards the position of these abscesses, they occur in order of frequency, in (1) the upper surface of the right lobe of the liver; (2) near the margins of both lobes of the liver near the groove for the stomach; (3) on the lateral surface of the right lobe opposite the eighth and ninth ribs in the axillary line.

When these abscesses are superficial they tend to form adhesions with the diaphragm. Concerning the etiology of abscess formation some interesting facts are given.

His previous experience is further supported in that most tropical liver abscesses occur during the course of chronic dysentery. He noticed that in cases of dysentery treated during the winter, inflammatory conditions of the liver were of infrequent occurrence, the average number in which abscess formation occurred being 1·5 per cent. During the months of September and October, on the other hand, 23 per cent. of dysenteric cases suffered from inflammation of the liver, and 11·5 per cent. from liver abscess. After the middle of November not a single case of liver abscess occurred.

The causes for this he explains as follows:—

1. The months of July and August, after a dry cold winter, brought tropical heat and great dampness of the air. This renders the liver more hyperæmic and more liable to infection. 2. That in China, although people suffer very considerably from chronic dysentery, they do not consult a doctor until a period most favourable to the formation of liver abscesses, when they are obliged to go to hospital. 3. He considers that severe bodily exertion seems to have some influence in the causation of liver inflammation, as he observed the largest number of cases amongst the cavalry.

As regards symptoms there is little of importance. The pain is, as a rule, at first somewhat diffuse, and later becomes more localised, often towards the right shoulder.

In the diagnosis and treatment, he recommends first aspiration as most important for localising the abscess. No operative interference should be made before aspiration has first localised the abscess.

It (aspiration) is best performed with the patient lying on his back rather than on the left side, as in the latter position the right lung extends lower down, and tends to get in front of the needle.

In abscesses which show no special point of localisation, aspiration should be performed between the mammary and right parasternal line, in the highest intercostal space where absolute dulness is present, in a direction obliquely backwards and slightly upwards.

As regards operative treatment, he recommends stitching

the liver substance to the abdominal wall, and subsequent opening of the abscess two or three days afterwards. In opening the abscess he does not recommend the use of the knife, especially if it lies deeply, but the introduction of a thick aspirating needle and then the widening of the channel by blunt forceps, the finger or the Pacquelin cautery. He only recommends the syringing out of the cavity when it is large and branching or the pus rather solid. After operation, not uncommonly, smaller abscesses burst into the larger cavity.

In abscesses high up on the upper surface of the liver, he recommends the following operation :—

The abscess is first localised by means of an aspirating needle; 5-7 cm. of the rib or costal cartilage lying under the seat of puncture are removed. The costal pleura is then divided. It is frequently necessary to push the lung upwards in order to expose the puncture in the diaphragm. He then stitches the costal pleura to the diaphragm above the seat of puncture, so as to shut off the pleural sack completely. After passing through the diaphragm, the peritoneum is stitched to the liver, leaving an area five-shilling piece in size at the bottom of the wound, which is plugged. After three days the pleura and peritoneum have become sufficiently adherent, and the abscess is opened.

WILMS, "Operative Behandlung multipler, durch Cholangitis und Cholecystitis Enstandener Leberabscesse."

This surgeon describes a case in the *Munchener Medicinische Wochenschrift*, 1902, No. 13, in which, along with a muco-purulent cholecystitis, were associated about twenty small abscesses in the upper and under surfaces of the liver. He emptied the gall-bladder and drained it, and at the same time treated all the small abscesses separately in a similar way. He surrounded the whole of the right lobe of the liver with gauze.

After five weeks the patient was cured, and has remained healthy.

PERTHES (*Deutsche Zeitschrift für Chirurgie*, Bd. lxiii. p. 109) reports a case of liver abscess after typhoid fever, in which, nine weeks from the commencement of the fever, a rapid swelling of the liver, with tenderness and high temperature, took place. A sub-diaphragmatic abscess was diagnosed ; and after aspiration, 6 cm. of the ninth rib were resected in the anterior axillary line, the diaphragm was incised. The upper surface of the liver was normal, but a distinct resistance could be felt. The liver was stitched to the diaphragm and intercostal muscles, and incised. A litre of pus was removed from an abscess situated 4 cm. from the surface.

The pus bacteriologically contained streptococci and typhoid bacilli.

Such cases occur rarely after typhoid fever.

GOEBEL (*Egypte méd.*, 1902), "Abcès de foie dans les bronches." A case is described in which a man, thirty years of age, suffered from a liver abscess which communicated with a bronchus. The eighth and ninth ribs were resected in the posterior axillary line and the abscess opened after passing through the diaphragm.

After seven months the communication with the bronchus still remained.

The opening in the bronchus was closed by a wedge-shaped flap formed from the surrounding cicatricial lung tissue, the base of the flap being situated close to the opening in the bronchus.

Some recent articles appear in various journals concerning the treatment of hydatid cysts of the liver.

RASUMOWSKY (*Archiv für Klinische Chirurgie*) advocates Bobrow's method of treating the cyst. This consists in emptying the cyst and then stitching it up again and returning it into the abdomen, and closing the abdominal wound.

The advantages which Bobrow claims for his method are:—

1. A rapid cure and absence of long-standing suppuration.
2. No open wound being present, there is no tendency to secondary infection.
3. There is no discharge of bile or the formation of a biliary fistula.
4. There are no adhesions formed between the liver and abdominal wall.

The following disadvantages are however discussed by Rasumowsky:—

1. The greater probability of recurrence.
2. The possibility of recurrence in the enclosed sack.

In order to avoid the latter, Rasumowsky advises stitching the closed sack to the margins of the abdominal wound, bringing out the ends of the sutures and fixing them over a piece of gauze. These are removed in ten days, and in the case of suppuration, the sack can be opened easily without passing into the peritoneal cavity.

ORLOW (*Deutsche Zeitschrift f. Chirurgie*, ix. 506, 1901), in discussing the Bobrow-Posadas method, states that in 134 cases

operated on by this method, there was a mortality of 6·7 per cent., a higher percentage than occurs in simple drainage.

He considers it important to thoroughly purify the cavities, especially when large, as the walls tend to fall together and form folds after emptying, which afford a good nidus for parasitic growth.

WINTERNITZ (*Schmidt's Jahresbericht, Mai* 1902), in discussing infection of and suppuration in echinococcus cysts, does not consider it due to any chemical action of the bile, but to an infection probably from micro-organisms present in stagnant bile.

He has cultivated a small diplococcus which he names "Diplococcus parvus intestini septicus," which grows freely in the bile and in echinococcus fluid.

(*To be Continued.*)

Public Health

BACTERIA AND FOODSTUFFS

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THE controversy as to the frequency or rarity with which tubercular disease is contracted through the presence of the B. tuberculosis in milk and the recent cases of food-poisoning in Derby have suggested that a brief review of our knowledge regarding the bacteriology of foodstuffs might be interesting and useful. Much work has been done of late years which has extended our knowledge in this direction. Most foodstuffs, as ordinarily sold, contain numerous microbes, but fortunately it is not so common for such organisms to possess pathogenetic properties. Most of the organisms found in ordinary articles of diet are harmless to the persons consuming such food. Here the foodstuffs will be considered according to their origin as animal or vegetable products, and such points will be noted as, general bacterial purity; the organisms commonly to be found associated with the particular foodstuff; the suitability of the material to form a medium for the growth or conveyance of pathogenetic microbes, or for the production of poisons by such microbes; and finally, the pathogenetic varieties which each foodstuff is most liable to harbour.

A. OF ANIMAL ORIGIN: 1. MEAT.—In bacterial purity all other forms of meat far exceed pig's flesh. Most of the epidemics of food-poisoning due to meat have proceeded from some of the various forms in which this flesh is consumed. The large amount of gelatinous material present in cooked pork may, as suggested by Ballard, explain the frequency with which organisms invade pork, since most microbes flourish well in jelly as a nutrient medium. Pork pies and sausages (German or otherwise) are most liable to harbour harmful bacteria which may generate in the viand acutely poisonous toxines and ptomaines or which may produce disease when themselves ingested. Thus the disease known as botulismus, a form of sausage poisoning, is due to the toxine produced in the meat by the B. botulinus of Van Ermengem. Other bacteria found in poisonous meat include the B. enteritidis of Gärtner, the B. pneumoniæ (found by Klein in the Middlesborough epidemic), the Welbeck bacillus, the B. coli communis, B. proteus and B. subtilis, besides numerous cocci. The spores of B. mesentericus vulgatus and B. butyricus are frequently present in cooked pies. The recent Derby epidemic was due to pork pies, and similar pies examined by Delepine were found to contain numerous bacilli of different kinds, viz., a variety of B. coli communis, and one resembling the B. enteritidis of Gärtner in some respects, and possibly identical with a bacillus found by Gaffky and Paak in connection with a similar epidemic. Veal pies and pork pies believed to have contained the B. enteritidis of Gärtner caused not long ago the outbreak known as the Chadderton and Oldham epidemic. This organism is easily killed by heat, exposure even for a minute or two to 70° C. sufficing to destroy it, so that thorough cooking should prevent danger from it. German sausage frequently contains the spores of B. butyricus of Botkin; and in samples examined by Klein, although B. coli. comm. and the spores of B. enteritidis sporogenes were absent, there was present an organism closely resembling the typhoid bacillus, and named by him the B. pseudotyphosus. This microbe resembles the true typhoid bacillus in its size, appearance and motility, in its acid-forming properties without curdling milk and in agglutination with typhoid blood (1-50 dilution). It may, however, be distinguished by its forming oval spores on agar and by the shape of its growth on gelatine. After several weeks it slightly liquefies gelatine. No agglutination of true typhoid bacilli can be obtained with the blood of a guinea-pig injected with this B. pseudotyphosus. Preserved foodstuffs, judged by samples subjected to bacterioscopic analysis by Klein, contain many organisms both ærobic and anærobic, but none of these were found to be pathogenic to rodents.

2. FISH.—In fish, as in meat, organisms may be present capable of producing ptomaines, and of these ptomaines muscarin is a form often produced in decomposing fish. Cautley found organisms in the muscle of both mackerel and herring, and Klein found many also in tinned salmon, but none of these were pathogenetic.

3. MILK AND CREAM. — The general bacterial purity of milk is a misnomer, since milk forms so admirable a medium for many organisms, both pathogenetic and non-pathogenetic that an ordinary sample of milk contains microbes by the hundred thousand per c.c. and, when it reaches the consumer, it would be more correct to speak of its general bacterial impurity. Milk from the time it leaves the udder until it is consumed receives organismal impurity from numerous sources, amongst which may be mentioned, the milk left in the teats from the previous milking (which speedily swarms with organisms), the teats themselves, the hands of the milker, the pails and cans, the air and dust of the byres and dairies, the water used for washing the utensils, and other accidental means. Adulteration with water is not infrequently the means of adding further microbes to milk. Organisms commonly found in milk are B. fluoresc. liq., B. coli comm., Proteus, B. subtilis and numerous cocci. Milk containing large numbers of non-pathogenetic organisms may be a perfectly wholesome food, it is the advent of pathogenetic organisms against which our methods of sterilisation of milk are directed. Of these organisms the chief forms which milk is liable to convey are the B. tuberculosis, B. typhosus, B. diphtheriæ, Streptococcus scarlatinæ, and pyogenic organisms, and these must be referred to in more detail.

B. tuberculosis.—This organism may be present in the milk of cows having tubercular disease of the udder, such milk being rarely free from the bacillus. Cows suffering from general tubercle without implication of the udder may yield milk which may or may not contain the bacillus. The percentage of such cases in which the milk has been found to contain the bacillus varies very considerably, some observers finding it in over 50 per cent. and others in 0 to 14 per cent. of the cases. Retail milk is derived from a large number of sources, and consists of the mixed product of many cows not always living under the same conditions. In what percentage of samples of retail milk is it usual to find the bacillus? This is the important question in the interests of public health. The results obtained by different observers and in different countries vary very widely, and in even the same place discordant results are recorded. Thus in Berlin Obermüller found 61 per cent. of samples tuberculous,

but Petri only 14 per cent., and Rabinovitsch and Kempner 28 per cent. In Liverpool, of the town milk samples 2, 6·6, and 8 per cent. proved tuberculous, while of the country milk samples 17 to 29 per cent. contained tubercle bacilli. In Cambridgeshire over 50 per cent., and in Manchester 17·6 per cent. were the figures observed.

The differences in results are in part due to the error of paucity of data, percentages being calculated in some instances on a small number of samples. Klein examined 98 samples of London milk and found 7 per cent. tuberculous. He speaks very strongly upon the futility of examining retail milk for tubercle bacilli by the microscope alone, and insists upon experimental injection of the milk sediment into the guinea-pig as the only sure test. The fallacy of film specimens from the milk is a double one: the films may not show tubercle bacilli though made from milk which produced tubercle when injected into a guinea-pig, or the films may show apparent tubercle bacilli owing to the presence of other acid-fast bacilli in the milk. There are two bacilli to each of which the name of B. pseudotuberculosis has been given. The one so named by Pfeiffer resembles the tubercle bacillus more particularly in the lesions produced in the guinea-pig by its injection, and differs from it in not being acid-fast. It was found by Klein 8 times in the 98 samples of milk. The other so named by Petri and Rabinovitsch resembles the tubercle bacillus in being acid-fast, but differs considerably in the pathological lesions produced in the guinea-pig. Milk forms a good medium at 37° C. for the growth of tubercle bacilli, though their growth in it is somewhat slow if inoculated direct from tubercular deposits. Milk cultures are however highly virulent, and transference from other media such as glycerine agar to milk may result in the revival of a virulence previously lost. Cream exhibits certain differences from milk, in that though tubercle bacilli grow in it they do not gain in virulence. Galtier found that a short heating, say five to six minutes at 70° to 75° C., is not sufficient to kill all tubercle bacilli in milk, and either the time must be prolonged or a higher temperature attained. He advocates therefore that in practice milk should be boiled if suspected of containing tubercle.

B. typhosus.—Milk forms an excellent medium for this organism, which grows in it either at 37° or 20° C., producing acid without curdling the milk. In cream, however, the organism will not grow at 37° C., though it does so at 20° C. Typhoid fever is frequently spread by milk which may be contaminated in any one of many possible ways. The disease is commonly present in such cases at the farm or dairy, or the vehicle of infection may be well-water contaminated and added to the milk.

B. diphtheriæ (Klebs-Löffler).—This organism may be present in milk, and has been isolated from it by both Eyre and Bowhill, but more commonly bacilli resembling it morphologically but devoid of its pathogenetic powers are present in milk. Eyre describes three of these, two of which are chromogenic, and concludes that several groups of bacilli exhibiting segmentation, metachromatism, and clubbed involution forms are occasionally present in retail milk. The Löffler bacillus will grow in milk, but unlike other media the optimum temperature in milk is 20° C. instead of 37° C. The organism does not grow in cream at either temperature.

Streptococcus scarlatinæ (Str. conglomeratus). — This organism grows well in milk at 37° C. and at 20° C., producing at the former temperature rapid curdling of the milk, but in cream it grows only at the lower temperature and then only to a limited extent. The organism may gain access to milk either from the cow, or from cases of the disease existing either at the farm or dairy, or later by contamination in the course of distribution.

Pyogenic organisms.—Thirty per cent. of London milk samples contained organisms capable of producing abscesses in guinea-pigs, and such varieties were present as Staphylococcus pyog. aureus, Streptococcus pyog., B. coli comm. and a pathogenic yeast. The B. enteritidis sporogenes may occasionally be present in milk.

4. BUTTER.—The organisms present in butter may be regarded as likely to be of the same varieties as those in milk; but experiment shows that butter is not so liable to contain pathogenetic microbes. Prausnitz estimates that butter sometimes contains as many as ten to twenty millions of germs per gramme. Laser found that Vibrio choleræ may remain alive and virulent in butter for 32 days, and the typhoid bacillus for three or four weeks. The tubercle bacillus finds a suitable medium in butter, in which it may remain virulent for 12 days according to Heim, and even up to 90 days according to Moore. Butter made from the milk of a cow with tubercular udder produced the disease in a rabbit; and though there is no evidence that tubercle has been spread to man by butter, there is ground for suspicion in the fact that in Germany some 30 per cent. of the samples analysed contained the bacillus. Klein, however, recently tested samples of butter from Normandy, Brittany, Ireland, Australia, France and Dorset, using as much as a quarter of a pound of each of twelve samples, and failed to find in any instance the tubercle bacillus or either variety of the B. pseudotuberculosis. The Staphylococcus aureus was present, however, in one sample.

5. MARGARINE.—The bacterial purity of margarine varies with the mode of manufacture, organisms gaining access to it from the original cattle, from butter and milk added, and from contamination during manipulation. Morgenroth found the tubercle bacillus present in 45 per cent. of twenty Berlin samples, and Annett found it once as well as other organisms pathogenic to guinea-pigs. Klein's experiments with six London samples showed no pathogenetic organisms in any of the six.

6. ICE-CREAM.—A number of cases of ice-cream poisoning in London led to samples of this material from the same neighbourhood being examined bacteriologically. Many organisms were present, and these were nearly all of non-sporing varieties, so that probably they had gained access after the boiling process in the course of manufacture, and were not destroyed by the subsequent freezing, though possibly inhibited thereby. The organisms present were B. mesentericus, B. coli, B. lactis aërogenes (virulent), Proteus, and an anærobe. The samples were found to have been prepared in insanitary premises, and the prevention of danger in future lies in improvement of the premises and in cleanly manufacture, together with reduction of the time allowed to elapse between the boiling and freezing processes. On the 1st November 1902 there came into force in London an Act regulating such manufacturing premises and penalising contamination of ice-cream.

7. CHEESE.—To the general bacteriology of cheese we need not refer; but its behaviour to certain organisms needs to be stated. The bacilli of diphtheria and typhoid fever will not grow upon Cheddar cheese at either 37° or 20° C., while the Str. scarlatinæ only grows to a limited extent, and that at the lower temperature. Tubercle bacilli, however, grow upon sterilised Cheddar cheese as a thin, filmy, translucent layer, and they may be recovered after two or three months in an apparently normal condition, but with lessened virulence.

8. COCKLES.—To cockles, gathered on foreshores polluted by sewage, and eaten raw or only half-cooked, has been attributed the outbreak of typhoid fever in certain districts. Bacteriological examination of cockles resulted in the finding of B. coli comm. and B. enteritidis sporogenes present in some 50 per cent. of the samples. These organisms are the common organisms of sewage, and though the B. typhosus was not itself isolated, it is probably possible for it to be conveyed by cockles. Mussels and cockles kept for twenty-four hours in typhoid-infected sea-water receive and retain the B. typhosus, and do not get rid of it after transference for forty-eight hours to clean sea-water. A similar result was obtained with cholera-infected water. Even three days in fresh sea-water failed to remove

typhoid bacilli from cockles. Indeed these organisms appear to multiply in number within the cockle. Pouring boiling water over a heap of mussels or cockles does not prevent the recovery of live cholera and typhoid organisms from the infected shell-fish at the bottom of the heap. In connection with the prevalence of typhoid fever in Belfast, attributed to infection by cockles, Jaffe calls attention to the immunity enjoyed by the Hebrew portion of the community who adhere strictly to the Mosaic code of diet and avoid eating animals living in the sea and not covered by scales.

9. OYSTERS.—Many non-pathogenetic organisms exist in oysters, and it is common to find, as in cockles, the colon variety abundant. Oysters can live long in water even though it be opaque with fæcal matter, and oysters have a cleansing effect on moderate pollutions. Epidemics of enteric fever, undoubtedly incited by the consumption of oysters from beds contaminated with sewage, prompted experimental work with oysters and the typhoid bacillus. It was found that the organism could be recovered from an oyster fourteen days after infection, but that there was no evidence of multiplication of the organism in the oyster. If such an infected oyster be kept in a running stream of clean sea-water for a week, the organism is irrecoverable and the oyster has apparently cleansed itself of the infective material. The bacillus cannot live in clean sea-water.

B. OF VEGETABLE ORIGIN: 1. CEREALS.—Bacterioscopic analysis of such cereals as oats, wheat, rice, oatmeal and wheat flour reveals a bacterial flora of some magnitude. Most of the organisms found present by Klein were non-pathogenetic, and amongst these the most universal was an organism named by him B. citreus cerealis. Other forms included moulds, cocci and spores of B. subtilis and of B. mesentericus ruber. Typical B. coli communis is not commonly found, though sometimes present in rice flour and in oatmeal, but organisms of the colon kind are detected in most samples. None of these, however, are fatal to guinea-pigs. The only pathogenetic organism found was B. enteritidis sporogenes. This was frequently present in the form of spores possessed of high virulence which could almost always be found in as much as a gramme of oats or wheat grain. Samples of these grains were taken from produce of very different origins, ranging from Russia and America to Australia and India. The Scotch oats yielded the organism also but in a less virulent form. Samples of rice and oatmeal purchased in London shops also yielded the organism, but it was not found in two samples of flour similarly obtained. The presence of this organism in cereal products is regarded as probably due to mixture with surface soil and dust either at the place of growth

of the grain or in course of collection and transmission. Klein has conducted further experiments with the object of ascertaining whether cereals are capable of sustaining pathogenetic microbes purposely or accidentally added to them and of transmitting these to man. The latter power must of course depend to some extent upon the thoroughness of the cooking to which the food is subjected. The results obtained were as follows. In wheat flour water the typhoid bacillus can live for 9 days, the diphtheria bacillus for 2 to 4 days, the Staphylococcus pyog. aur. for as long as 24 days, the cholera vibrio for 4 to 6 days, and the B. pyocyaneus 14 days. In all these experiments the wheat flour water was made of unsterilised flour and sterilised water. When oatmeal was used instead of wheat flour, the typhoid bacillus gave much the same result, but the diphtheria bacillus proved less hardy and was irrecoverable after two days. The cholera vibrio was lost in 4 days and B. pyocyaneus in 7 days. In rice water the organisms survive longer; possibly this is due not to rice water being a more favourable medium but to its containing as a rule a smaller number of other organisms than the former media. The typhoid bacillus survived in rice water 25 days, the diphtheria bacillus 3 days, the Vibrio choleræ 3 to 4 days, and the B. pyocyaneus 30 days. On the whole the diphtheria and cholera organisms are less capable of persisting in these media than the other organisms.

The experimental work which is here summarised may for the most part be found in detail in the 29th and 30th Reports of the Medical Officer to the Local Government Board (1901 and 1902).

DIFFICULTIES IN THE DIAGNOSIS OF SYPHILIS

FROM an address to the Boston Society for Medical Improvement by Professor James C. White (*Boston Med. and Surg. Journ.*, Jan. 16, 1902), we take the following extracts *verbatim*:—

"Formerly it was not infrequent whenever a rare affection of the skin presented itself, if it were not recognised by a physician, to say it must be syphilis, because he did not know what else it might be."

"You may generally ignore the matter of the primary lesion; as a rule it is of little consequence in determining the history or existence of syphilis."

"It is a great pity that any such term as copper-coloured was ever invented." "The copper colour in the eruption is exceptional." "Very little weight should be laid on it." "Loss of hair in syphilis is the exception, not the rule." "Syphilis

very often occurs in perfectly plump, healthy-looking infants, moreover the disease will begin and run a considerable time without telling at all on the general appearance of the patient."

"One cannot take iodide of potash alone or mixed with mercury without, in a great number of cases, producing an eruption. Unless a person is much better versed in the knowledge of the appearances iodides are capable of producing on the skin than most dermatologists are, it is utterly impossible to distinguish between possible syphilitic manifestations and an iodide eruption, and the physician later appealed to has lost every possible means of deciding whether that person has syphilis or not. It should be almost a criminal offence for a physician to give iodide of potash under such circumstances, or ever to give iodide of potash in the early stages of syphilis, except in rare malignant and destructive forms. It is wholly unnecessary, and leads to serious errors with regard to the disease afterwards."

"Varicella may be mistaken for syphilis, and so may variola." "I am not one of those who believe themselves capable of diagnosticating smallpox easily."

"There is an affection called pityriasis rosea described years ago by Gibert. Physicians, as a rule, do not recognise it. There is no reason they should, because they were not taught about it when students. A very close resemblance to scaling syphilodermata of mild grade will be observed. Of course, there are other associated manifestations which ought to enable one to make the diagnosis, but sometimes they are masked."

"Pemphigus in new-born children is sometimes syphilitic and sometimes it is not, and that is about all you can say."

"There is an affection called erythema induratum, described years ago by Bazin, although forgotten by the profession. Lately, endeavour has been made to show that they (the lesions) are really evidences of tuberculosis in the skin, but formerly they were undoubtedly, in the great majority of cases, considered syphilis."

"Lupus is not infrequently mistaken for syphilis, and some of the other forms of cutaneous tuberculosis as well; but the one phase I want particularly to call attention to is dactylitis, the enlarged turkey-leg finger, in which the nearest phalanx to the hand is bottle-shaped, dwindling down to the apex. Those cases were formerly all called syphilitic dactylitis, but probably tuberculosis produces a far greater share of these conditions than syphilis does."

"I say again how very important it is to be able to recognise syphilis in its earliest stages on other parts of the body than

the genitals, and of how frequent occurrence that is, and how calamitous are the results this failure to recognise leads to."

"One must have courage to make a diagnosis of syphilis often, but one must never be deterred by the high social position of a patient or the family in which suspected cases occur, or the moral character of the suspected parties, because one meets syphilis in all professions, in every class of society."

"And another word with regard to a common fault of the profession; insufficient treatment and the lack of care in seeing that their patients are instructed upon the necessity of a sufficiently long duration of treatment. I have adopted the rule of telling every patient whom I see for the first time with syphilis that it is a matter of three years' care at the shortest in every case; that the first year is a year of perpetual, continuous, uninterrupted treatment; that the second year may be the same or an interrupted course, according as the first year goes on under observation; and that the third year is a year of observation without treatment, perhaps; but without that third year of observation and entire freedom during it from every manifestation of the disease, one cannot assure the patient that he is well or likely to remain well; and the question of marriage, which so often comes up in connection with this disease, can never be properly determined until after the third year has passed. I fear that we fail to impress upon patients the necessity of such long duration of treatment and observation in every case of syphilis as much as we should."

New Books and New Editions

Public Health and Preventive Medicine. By C. J. Lewis, M.D., D.Sc., F.R.C.P.E., M.R.C.S., etc.; and Andrew Balfour, M.D., B.Sc., D.P.H., etc. Pp. xxiii., 658. Edinburgh: William Green & Sons. 1902. Price 25s. net.

The primary questions to answer when a new Public Health text-book appears are—What part of the vast service does it best serve? What features entitle it to recognition? In the case of this large and handsomely produced volume, it is easy to answer. The book serves chiefly the student; secondarily, the Medical Officer of Health; in a less degree, the public health administrator as such. The essential features of the contents are their freedom from irrelevant or unimportant topics, their condensed statements of ascertained fact and theory, their comprehensiveness, and their sufficiency from the standpoint

assumed. We have tested the adequacy of the expositions in the leading departments, and the test is well borne. This is no mean commendation, for the perpetual and almost daily increasing difficulty in framing any comprehensive work on Public Health is the proportional selection of matter from the illimitable chaos of traditional doctrines, current researches, and ever-changing laws and regulations. At the best, a text-book must be a compromise; but the compromise here has been effected with judgment and a strict regard to proportion. The decision not to add a "literature" is a mistake. For it leaves the volume to break ground without indicating clues for supplementary verification and study. In science there is no dogmatism, and no fact is without a ground in sufficient evidence. A reference literature is, therefore, essential; and when the book goes into a new edition, as it ultimately will, this defect should be made good. Further, for all fundamentals, *e.g.* the standards in ventilation, water, sewage, etc., the primary research or authority should be indicated explicitly by detailed reference. This constitutes the real reason for the vitality of "Parkes' Hygiene." The book will then cease to be a hand-book and will pass into the circle of the true text-books. The arrangement and exposition are lucid and pointed. Here and there one notes a tendency to touch the white light of science with the iridescence of mere rhetoric—a dangerous method. For example, "Wine, according to Professor Blackie, 'the proper drink of man,' is a beverage, etc." (p. 247). The authors will be well advised to weed vigorously out all such merely rhetorical decorations. The particular example is trivial, for no one takes Blackie for an authority, but the principle of keeping "scientific books for science" is not trivial. In several parts the sentencing would bear elaboration; but, over all, the exposition is excellent.

The "Medicine" section occupies the first 124 pages, and the leading points of all the leading infections are set forth in a consistent learner's scheme. The defects of the ordinary hand-books—excess of detail on non-practical points—are avoided. Only those that have had to apply precise facts for the ends of administration can realise how important perfect precision in this matter is. Usually the infections are overdone. Here they are kept in due co-ordination with nutritional and occupational diseases, regarding which Arlidge's work, and, later, Oliver's "Dangerous Trades," enable the authors to state definitely grounded scientific conclusions. The summaries are well done from the student's standpoint; but from the research standpoint, they suffer from the want of adequate reference.

Under "General Sanitation," we have the usual matters of climate, soil, air, water, food, sewage, etc. The treatment is

fresh. The illustrations and worked-out examples are particularly well presented. Water and the provision of water supplies are good types. One would prefer to see less stress said on the "teacher's" aspects of chemical water analysis—which in practice is largely supererogatory—and more on the sanitary physical conditions, which in engineering and public health practice are vastly more important. A parallel case is the physiological chemistry of urine as against the clinical analysis of the same.

The sections on "Building Construction," and "Sanitary Engineering" contain several matters new to the general text-books; the additions are improvements.

The section on "Vital Statistics" contains, in lucid sequence, everything essential of "first study." The precise logical ground of the "standard death-rate" (p. 431) would bear some further explanation. This is a point of great importance for comparative statistics, but the expositions of it almost always fail in perspicacity. Here, the explanation is lucid as far as it goes, but a little more elaboration would not be misplaced.

The section on "Sanitary Administration" gives a summary of all the leading Acts, Orders and Regulations. This section will be of great value for continued study of the particular Acts.

There is a good index. In the hands of a capable teacher, this volume will form an excellent instrument. With the additions already suggested, it will become equally serviceable for the ends of continued study and practical routine reference.

Report on Dieting of Pauper Lunatics in Asylums and Lunatic Wards of Poorhouses in Scotland. By Dr J. C. DUNLOP; being supplement to the Forty-third Annual Report of the General Board of Commissioners in Lunacy for Scotland. Pp. 98. Glasgow: James Hedderwick & Sons. Price 5½d.

THIIS report gives the result of an inquiry made by Dr Craufurd Dunlop, at the request of the General Board of Lunacy, into the dietaries of rate-supported patients in the different institutions for the insane in Scotland. Returns of the actual issues of food in Asylums and Lunatic Wards of Poorhouses during four weeks of March 1900, were obtained, with details of the dietary regulations and other particulars; and from the information given in these returns Dr Dunlop estimated the nutritive value of the dietaries. As it was impossible to make an analysis of the individual articles used, a reliable average of

composition was adopted for each form of food; and any discrepancy which might arise under this method was checked by comparing the weights of the patients using the dietary with the standard weight of individuals of the same height. Dr Dunlop regards the "Energy Value" as the most important point in examining a dietary; and after indicating how the sufficiency of this must vary with the amount of work done, and with the age, size, and sex of the patients, he adopts as his standard 3300 Calories for males and 2650 Calories for females. He also takes into consideration the proteid value, relative amount of fat and carbohydrate, use of condiments, and amount of variety in the kinds and division of the food-stuffs. On these general principles the dietary of each institution is separately examined in detail, and critical remarks made on it. It appears that there is considerable variation in food arrangements among the different institutions. In the majority the dietary is so far satisfactory that it is equal to or higher than the standard requirement of energy value; but Dr Dunlop shows that considerable improvement could still be made in some of the details, particularly in introducing more variety in the forms of food used and in the methods of preparing it. A minority of the institutions show an actual deficiency of greater or less amount in the value of the dietary, the probable causes of this and the means of rectifying it being pointed out in each instance; and in these cases the weight of the patients is also, as might be expected, generally more or less below the average standard. It is well known that the forms in which food is used are regulated largely by local habit, and that allowance must be made for this in arranging the diet scale of an institution. It is therefore not advisable to prescribe one fixed form of dietary as applicable to all asylums; but in summing up his report Dr Dunlop very properly lays emphasis on certain points which should be regarded as essential in making out the diet-scheme of any asylum. He urges the free use of bread as the basis of all ordinary diets, the use of proteid food in sufficient quantity and in appropriately varied forms, a liberal allowance of potatoes and fresh vegetables, and a sufficient use of condiments such as tea and butter. The report is an excellent piece of work, clear, and practical; and particularly by those engaged in asylum practice it will be found interesting and full of valuable suggestions on the subject it deals with.

A Text-Book of Pathology. For the use of Students and Practitioners of Medicine and Surgery. Edited by LUDWIG HEKTOEN, M.D., Professor of Pathology in Rush Medical College, University of Chicago; and DAVID RIESMAN, M.D., Professor of Clinical Medicine, Philadelphia Polyclinic; Instructor in Clinical Medicine, University of Pennsylvania. In two vols., with 443 illustrations, 66 in colours. London and Philadelphia: W. B. Saunders & Company. 1901. Price 35s. net.

THERE is certainly room at present for a good text-book of pathology. There is hardly a single comprehensive and up-to-date text-book in English on the subject that can be safely recommended to either student or practitioner. The present volume is a system by many authors, and it may be noted that the contributors, with a few exceptions, are by no means the better known of the American pathologists. The subject of pathology has grown to such an extent in recent years that it is practically impossible for one man to undertake the whole work, and the alternative of a collection of individual articles is inevitable. The system before us suffers from this, as the articles vary considerably in value. One cannot help feeling that in many there is a mere average of the views of various authorities. There is a good general introduction, but one cannot help feeling sorry for the student, introduced to the mysteries of the modern views of immunity before thirty pages are passed.

At the same time no one could reasonably complain if this most important subject was treated in rather greater detail than is done here. At times, throughout the book, there is a distinct tendency to a "sketchy" rather than a thorough treatment of the subject. The subjects of Disturbances of the Circulation and the Retrogressive Metamorphoses are sufficiently fully treated for the ordinary student's needs, and modern views as to Inflammation are well and clearly expressed. The section on Tumours is well illustrated, but the microscopical sections reproduced are not very happily chosen. This is a fault, indeed, seen through the entire book: the illustrations are for the most part extremely good; some of the coloured drawings are beautifully reproduced; but certain subjects, not always the most important, are almost copiously illustrated, while others are almost neglected. The author keeps a very open mind over the vexed question of the Ætiology of Malignant Tumours. The section on Bacteriology is fairly full, and excellent as far as it goes. The chapter on Animal Parasites is disappointing, and in some respects hardly up to date. For instance, no reference is made, in Filariasis, to the infection of man through the living mosquito. Coming

to the Special Pathology, the opening chapter is on the Pathology of the Blood by Cabot, whose name is sufficient guarantee of the excellence of the article. The Pathology of the Circulatory System is also satisfactory.

The article on the Kidney is distinctly good, the recent work of Concilman and Mallory receiving due notice. While some of the systems receive adequate attention, the Special Pathology as a whole is not so satisfactory as the first part of the book. One cannot help feeling that rather too much has been attempted in a work of this size. To include the Pathology of the Female Genital Tract, the Breast, the Skin, the Eye and the Ear, does not add much to the value of the book as a whole, as these subjects are necessarily very briefly described, and the extra space would have been much better applied in treating in greater detail some of the other systems. It would certainly have added much to the value of the book to practitioners; while as it is, these latter subjects have not the same importance from the student's point of view. At the same time the book, filling as it does a distinct want, and presenting as it does a clear and readable epitome of modern pathology, is sure to meet with a large degree of success, though at the price it can hardly be expected to become popular with students. It should be added that the book is extremely well got up, the printing being worthy of special praise.

The Force of Mind, or the Mental Factor in Medicine. By ALFRED T. SCHOFIELD, M.D., M.R.C.S., etc., Author of "The Unconscious Mind," "The Springs of Character," etc J. & A. Churchill. Price 5s. net.

WHEN Dr Schofield published his interesting book, entitled "The Unconscious Mind," some years ago, he discovered that the term "unconscious mind" was strongly objected to by many of the exponents of psychological orthodoxy. He has therefore endeavoured to find for his present work a title void of offence, but the conscientious reviewer feels bound to reveal the fact that the "mind" which is dealt with is of the "unconscious" kind. The book is addressed primarily to the medical profession, for the assistance of "those who are really anxious to study the relations of mind and body with regard to disease."

Whether the term "unconscious mind" is a happy one or not, it is at any rate a useful one for the designation of certain phenomena of an apparently psychical nature which yet take place apart from consciousness; for such phenomena, for instance, as the older physiologies cited as examples of uncon-

scious cerebration. Dr Schofield, however, uses the term in a very much wider sense, and we feel that we must follow him with considerable caution when we find him quoting with approval Sir William Dawson's assertion that "an amœba shows volition, appetite and passion"; and Mr Carter's picturesque statement that amœbæ "will patiently lie in wait for the newborn acinetes as they leave the maternal ovary, being aware that these must as yet be lacking their poisonous tentacles." After this we are not surprised to find Dr Schofield himself affirming that unconscious mind is exhibited in "the marvellous increase of smooth muscle in the uterus at term, and its no less marvellous subsequent involution"; in "the growth of the body and its arrest at a fixed period"; or again, in "the detailed process of repair in a broken bone, and for a damaged lung." Our old friend the *vis medicatrix naturæ* is also discovered to be nothing more than the action of the unconscious mind.

The first part of the book is expository, and deals with the conception of the unconscious mind and its action in causing disease. The second is practical, and deals with the action of the mind in curing disease. The principal propositions maintained are, that "the force of mind is a therapeutic agent in every disease," and that "functional nerve diseases are mostly cured by suggestions presented in various ways." In illustration and support of these contentions there is an interesting discussion of neurasthenia and hysteria, in which the differences between these affections are indicated, and some very useful suggestions as to treatment are furnished.

Altogether the book is worth reading, not only for what it contains, and it contains much that is admirable, but because it is fitted to prove a stimulus to thought upon a subject of much interest and importance to the medical profession.

Ligaments, their Nature and Morphology. By J. BLAND SUTTON. Third edition. Pp. 112. London: H. K. Lewis. 1902. Price 4s. 6d.

THE value of comparative anatomy as a guide to the true structure of man is never better shown than when dealing with joints, and Mr Bland Sutton, by examining specimens of a very large number of animals—amphibians, birds, reptiles and marsupials, as well as mammals—and comparing muscular and articular structures found in them with corresponding parts in man, has been enabled to throw much light on the origin and true significance of many of the normal arrangements and variations met in the human body.

The tendon of the plantaris muscle, the ligamentum teres and the semilunar cartilages and crucial ligaments of the knee have been problems to every thoughtful student of anatomy, and we can warmly recommend this treatise to anyone who wishes to have an explanation of the origin of these and similar structures. The researches form an admirable example of the way in which problems of the sort should be approached—by careful dissection of many specimens, and observation of the adaptation of structure to function.

This edition does not materially differ from former ones in extent or conclusions, but we are glad the author has been persuaded to issue it.

A Treatise on Human Anatomy by various Authors. Edited by HENRY MORRIS, M.A. and M.B. Lond. Third Edition, revised and enlarged. Pp. 1328. London: J. & A. Churchill. 1902. Price 30s.

THE third edition of this now well-known treatise on human anatomy has been carefully revised in nearly all its sections, the number of illustrations has been increased, and to many colours have been added. The sections on Osteology and the Nervous System show the greatest changes: the former has been considerably improved and is now on the whole very good. The descriptions of the bones are clearly stated, and the morphological characters and ossification sufficiently described. The section on the Nervous System has been enlarged and brought up to date, and gives a good account of the conducting paths in the Spinal Cord. Throughout the sections the accuracy of statement has reached a high degree of perfection, and a great deal of detailed information is given, but there is occasionally an absence of a clear statement of general principles.

Many of the illustrations are of a rather diagrammatic character, and several alterations might be carried out with advantage. In the first place many of the reproductions on a small scale of elaborate dissections of complicated regions of the body should be omitted.

On p. 497 there is such an illustration—a half-page reproduction of a dissection of the entire side of the neck from the base of the skull to the clavicle, with no less than 94 separate structures indicated by lines with names at the sides.

Such an illustration is never made use of, and would need to be of life size to be of any value.

On the other hand, in the section on Surgical and Topographical Anatomy there are only two illustrations—one the

palm of the hand, with the palmar arches indicated, and the other a view of the buttock with the innominate bones outlined —which give a surface view of any part of the body.

There is not a single illustration showing the landmarks of the limbs and trunk and the natural hollows and elevations, and the structures which produce or are related to them.

With these exceptions, the book forms throughout a remarkably reliable and complete treatise on anatomy, specially useful for higher examinations.

A Handbook of Surface Anatomy and Landmarks. By BERTRAM C. A. WINDLE, F.R.S., Sc.D., M.D., M.A. (Dublin). Professor of Anatomy in the University of Birmingham. Third Edition. Pp. 141. London: H. K. Lewis. 1902. Price 4s.

THERE is no doubt that the study of surface anatomy is of very great importance to the student of anatomy, and yet, as a rule, too little attention is paid to it either in the dissecting-room or in the hospital. Perhaps this is due to the fact that the majority of the books on this subject are of large size and the student has already as much work on his hands as he can well accomplish. The present volume is of a size more suitable for the student and can easily be read along with his practical anatomy in the dissecting-room. Professor Windle has taken great pains to provide an accurate and useful work on this much-neglected branch of anatomy, and we congratulate him on the large measure of success to which he has attained. The book is written in a clear and lucid style, accurate, concise, and yet easy to read, and only the more important and necessary facts are dealt with. We can recommend this volume to the student, and should like to see it in his hands as a companion to his practical anatomy book.

Practical First Aid. By WM. ROBERTSON, M.D., D.P.H., Medical Officer of Health and Surgeon of Police for Leith; late Medical Officer of Health and Police Surgeon for Paisley and Perth. Third Edition. Pp. 180. Paisley: Alexander Gardner. 1902. Price 1s 6d.

IN many respects this small guide to "First Aid" should prove useful to those ladies and gentlemen who take an interest in the subject. That it has done so in the past is proved by the fact that it has now reached a third edition. Taken as a whole, it is one of the best of the short treatises on this subject that we have come across, but we can only recommend it to a beginner as a substitute for notes taken at an ambulance class. The earlier

sections of the book could with advantage be considerably enlarged. In the later sections, in which the more frequent conditions met with by the "first aid" student are discussed, the author is to be congratulated on the clearness and conciseness of his descriptions and the many valuable hints he gives in the treatment of these conditions.

Selection of Consumptive Cases for Sanatorium Treatment. By T. N. KELYNACK, M.D., M.R.C.P. Pp. 26. London: The Scientific Press Ltd. 1902. Price Sixpence.

THIS reprint from the pages of the *Hospital* now published in book form contains a superficial survey of the economic aspect of the Tuberculosis problem. The busy practitioner might reasonably have expected to find in a book bearing this title some real assistance in enabling him to make a suitable choice of an Institution for dealing with likely cases which arise in his practice. But if he turns to this quarter for such assistance he will be sadly disappointed. The author considers that amongst other types of cases which should not be submitted to treatment in a public Sanatorium are the following class of patients:— 1. Girls below puberty; 2. Patients of neurotic temperament; 3. Those who have at some period in their past life suffered from a pulmonary attack of any nature whatever, in addition to many others who, alas, are only too frequently to be found in the ranks of consumptives. He is further of opinion that in selecting cases for treatment a consideration of the physical signs are of subordinate importance.

It is safe to say that these views are not shared by the majority of observers whose practical experience of sanatorial treatment equals, if it does not exceed, that of the writer.

All things considered, it is difficult to see what useful purpose can be served by the publication of this latest addition to the already somewhat extensive list of brochures dealing in a dilettante fashion with a very complex subject.

List of Books Received

From Baillière, Tindall & Cox.

The Journal of Obstetrics and Gynæcology of the British Empire. Vol. i., January to June 1902.

Aids to Practical Dispensing. By C. J. S. Thompson. Third Edition. Price 2s. 6d. cloth, or 2s. paper.

Aids to Dental Anatomy and Physiology. By A. S. Underwood. Second Edition. Price 2s. 6d.

Anæsthetics. By J. S. Blumfield. Medical Monograph Series, No. 7. Price 2s. 6d.

From J. & A. Churchill.

The Force of Mind; or, The Mental Factor in Medicine. By A. T. Schofield. Price 5s.

A Text-Book of Medicine. By C. H. Fagge and P. H. Pye-Smith. Fourth Edition. Vol. ii. Price 21s.

Diet and Food in Relation to Strength and Power of Endurance. By A. Haig. Fourth Edition. Price 2s.

Heath's Practical Anatomy. Edited by J. E. Lane. Ninth Edition. Price 12s. 6d.

Manual of Hygiene. By W. H. Hamer. Price 12s.

The Blood: How to Examine and Diagnose its Diseases. By A. C. Coles. Second Edition. Price 10s. 6d.

A Treatise on Anatomy. Edited by H. Morris. Third Edition. Price 30s.

Diseases of Children. By J. F. Goodhart and G. F. Still. Seventh Edition. Price 12s. 6d.

Obstinate Hiccough, The Physiology, Pathology and Treatment of. A Graduation Thesis. By L. F. B. Knuthsen. Price 6s.

From Wright & Co.

Medical Ethics, a Guide to Professional Conduct. By R. Saundby. Price 3s. 6d.

From H. K. Lewis.

Ligaments, their Nature and Morphology. By J. Bland Sutton. Third Edition. Price 4s. 6d.

Hygiene and Public Health. By L. Parkes and H. Kenwood. Second Edition. Price 12s.

The Etiology of Typhoid Fever. The Milroy Lectures. By W. H. Corfield. Price 2s. 6d.

Cancer of the Uterus. By A. H. N. Lewers. Price 10s. 6d.

Handbook of Surface Anatomy and Landmarks. By B. C. A. Windle. Third Edition. Price 4s.

From Rebman, Ltd.

The Treatment of Tabetic Ataxia By H. S. Frenkel. Translated by Freyberger. Price 12s. 6d.

Abdominal Examination and Manipulation in Pregnancy. By A. MacLennan. Price 6s.

From W. Green & Sons.

A Pocket Guide to Anæsthetics for the Student and General Practitioner. By T. D. Luke. Price 5s.

Regional Anatomy. By R. J. A. Berry. New Revised Edition. Three Vols. Price 5s. each.

From W. B. Saunders & Co.

Atlas and Epitome of Abdominal Hernias. By G. Sultan. Translated and Edited by W. B. Coley. Price 13s.

Treatise on Diseases of the Skin. By H. W. Stelwagon. Price 25s.

International Text-Book of Surgery. Edited by A. P. Gould and J. C. Warren. Vol. ii., Regional Surgery. Price 21s.

A Text-Book of Surgical Principles and Surgical Diseases of the Face, Mouth and Jaws, for Dental Students. By H. H. Grant. Price 11s.

The Elements of Bacteriological Technique. By J. W. H. Eyre. Price 10s. 6d.

Diseases of the Pancreas and their Surgical Treatment. By A. W. Mayo Robson and B. G. A. Moynihan. Price 12s.

From J. B. Lippincott & Co.

International Clinics. Edited by H. W. Cattell. Vol. ii. Twelfth Series.

From Cassell & Co.

Manual of Military Ophthalmoscopy. By M. T. Yarr. Price 6s.

Manual of Medical Treatment. By I. B. Yeo. Vols. i. and ii. Price 21s.

From Longmans, Green & Co.

The Practitioner's Guide. By J. W. Carr, T. P. Pick, A. H. G. Doran, and A. Duncan. Price 21s.

From The Scientific Press, Limited.

Ophthalmic Nursing. By S. Stephenson. Second Edition. Price 3s. 6d.

The Selection of Consumptive Cases for Sanatorium Treatment. By T. N. Kelynack. Reprinted from the *Hospital*, October 4, 1902. Price 6d.

From Macmillan & Co., Limited.

A Manual of Medicine. Edited by W. H. Allchin. Vol. iv. Price 7s. 6d.

From Henry Kimpton.

The Science and Art of Prescribing. By E. H. Colbeck and A. Chaplin. Price 5s.

From A. Gardner.

Practical First Aid. By W. Robertson. Third Edition.

Carmina Medici. By W. Findlay. Price 3s. 6d.

From the Government Printing Bureau, Ottawa.

Report on Observations made upon Cattle at the Experimental

Station at Outrement, P.Q., Recognised to be Tubercular by the Tuberculin Test. By Professor J. G. Adami and C. F. Martin. 1899.

From the University Press, Aberdeen.

Proceedings of the Anatomical and Anthropological Society of the University of Aberdeen. 1900-1902.

From E. B. Treat & Co.

The Mattison Method in Morphinism. By J. D. Mattison. Price 1 dollar.

From H. Kornfeld, Berlin.

Operative Geburtshülfe für Aerzte und Studierende. By W. Nagel. Price 10 marks.

From Sherratt & Hughes.

The Pharmacological Action, and Therapeutic Uses of the Nitrites and Allied Compounds (including the Croonian Lectures for 1893). By the late D. J. Leech. Edited by R. B. Wild. Price 10s. 6d.

Transactions of the College of Physicians of Philadelphia. Vol. xxiii. Third Series. 1901.

Eighty-Ninth Annual Report of the Royal Edinburgh Asylum for the Insane. 1901.

Reports of the Royal Asylum of Montrose for 1902.

Report of the Minister of Agriculture for the Dominion of Canada, for year ended October 31, 1901.

Notes on Foods, Drugs, etc.

Friedrichshall Water.—We have received from the proprietors a sample of Friedrichshall water, a natural aperient water depending for the most part for its aperient action on the presence of the SO_4-ion in the form of the sulphates of magnesia and soda. It is efficient and at the same time more palatable than most waters of its class; indeed it is by no means unpleasant to the taste.

MESSRS OPPENHEIMER, SON & CO. have written us, pointing out that our remarks in last month's Journal were unintentionally unfair to them. They inform us that the pamphlets which we criticised were issued at the special request of several leading men in general practice, who wished to have the information in a handy form, and that this literature is never under any circumstances issued to any but medical men.

We are still of opinion that such information should be either in the heads of medical men, or should be got from the recognised text-books, but we gladly publish this disclaimer, and also the further information that thei products are never dispensed except on medical prescription; for as we stated last month, such was our impression of the firm's attitude to the profession.

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